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BRASSEY'S NAVAL ANNUAL

WAR EDITION

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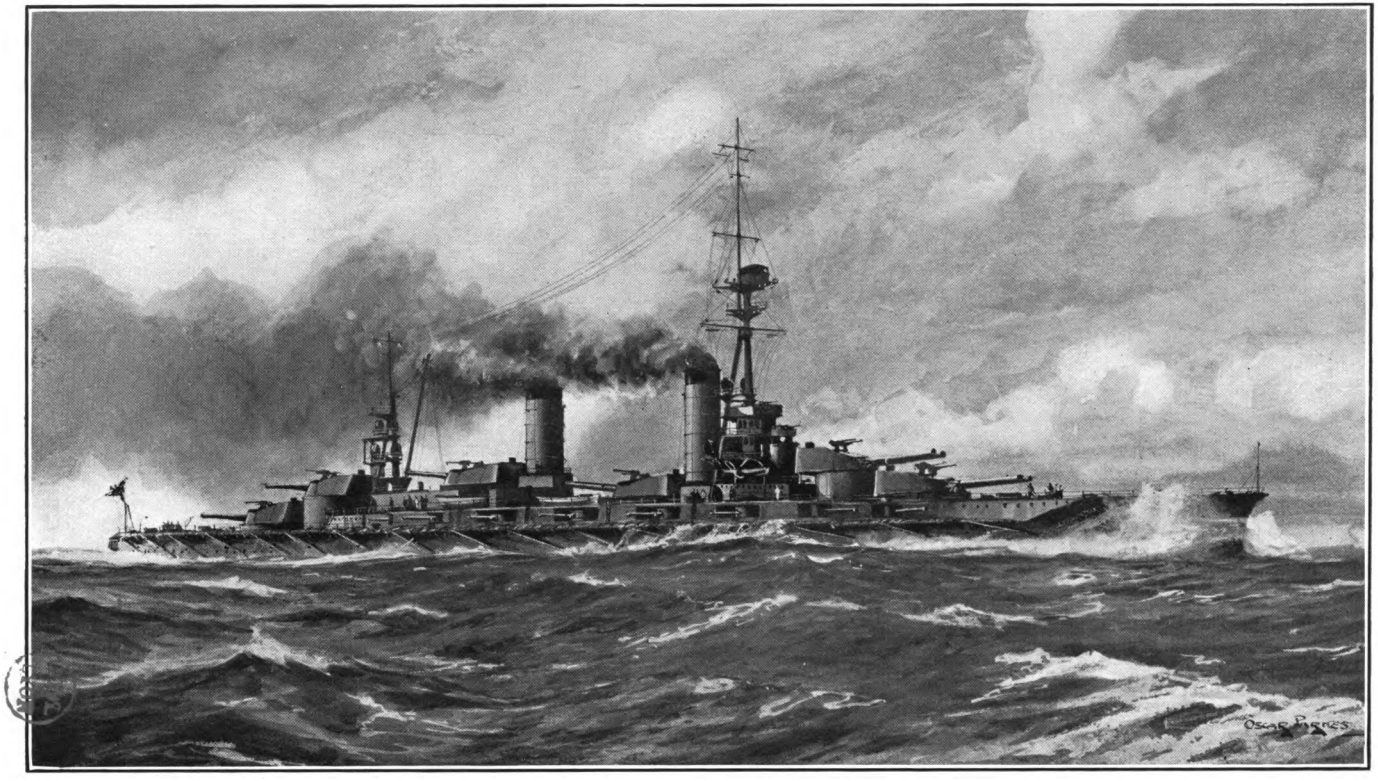

JAPANESE BATTLESHIP "FUSO."

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BRASSEY'S NAVAL ANNUAL, 1916.

CONDUCTED BY

EARL BRASSEY, G.C.B., D.C.L.

EDITED BY JOHN LEYLAND.

WAR EDITION.

The British Ship Plans and Pictures have been withdrawn from this issue by order of the Admiralty.

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PREFATORY.

For the second time the *Naval Annual* appears in a year of war. It is desirable that it should again be issued in these times, when British sea-power is the ruling influence and factor in the struggle. That power gives the Empire security, enables us to despatch armies abroad, and to maintain them with all requirements for their service, constitutes the indispensable link between them and their base, and enables us to assist our Allies with a multitude of supplies, without which they could not prosecute the war. A tribute may be paid here to the gallant Navies of our friends, and to the magnificent service they render, with our own Navy, in protecting the flanks of the Allied Armies on both fronts of the war. Recognition must also be made of the never-failing courtesy, counsel and assistance of the Admiralty in the preparation of the volume.

The *Naval Annual* was founded by Earl Brassey many years ago, being the pioneer work of its class, and it is invested with a character which is possessed by no other. Lord Brassey conducted the work unaided for a long period, relinquishing it afterwards to his son, Viscount Hythe, but for the second time Lord Hythe is engaged in the patriotic duty of enrolling and training men for military service, and in other responsible work. For this reason the *Naval Annual* appears under the same Editorship as last year.

Owing to absence in India, Lord Brassey was unable to take any part, but on his return, at the Editor's desire, he wrote the introduction to the volume. Lord Brassey has presented to the Government and people of India his famous yacht, the Sunbeam, whose romantic history, Imperial service and cruising renown have made her name a household word with us, to serve as a hospital ship, with her base at Bombay. It is with very great pleasure that the Editor is able to include pictures of the Sunbeam, and to place at the end of this volume an account of the circumstances of her acceptance by the India Government.

As to the contents of the *Naval Annual*, they have all relation to the war. Commander Robinson continues his admirable and instructive survey of the naval operations. There follows a study of the strategy of the war, and the new conditions by which strategy is influenced. Sir Francis Taylor Piggott, Chief Justice of the Supreme

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Court of Hong Kong, 1905–1912, a high authority on the rights of belligerents and the position of neutrals, has contributed a luminous chapter on "Neutrals and the War." A writer, whose name cannot be disclosed, but whose competence is unquestioned, has treated the subject of "Aircraft and the War" in a novel fashion, dealing with the strategy of the air, the character, uses and misuses of airships, and, in a general way, with the features of the seaplane. Mr. Alexander Richardson writes with great competence on "The War and Some Portents of Naval Machinery Design," and there is a chapter on the United States Navy, which is now in a state of active development.

In Part II. explanatory introductions to the more important tables have been introduced. The British Ship Tables are given with a discretion which reveals nothing to the enemy. The Foreign Tables present a record of development. Although information is not easily obtainable, it will be found that in the ship diagrams the new German classes are more fully shown, and that the new Japanese class of battleships is represented. In this edition the British ship plans are withheld by instruction of the Admiralty.

Part III. appropriately deals chiefly with the production of naval armaments, armour and munitions in the United States. In Part IV. are collected many official statements and reports representing the diplomatic side of the war with considerable fulness in relation to neutrality, blockade, contraband, the arming and sinking of merchantmen and other matters. The despatches of Admirals in command are included, as well as a table of warship losses since the beginning of hostilities.

Dr. Oscar Parkes, R.N., has contributed drawings which delineate the features of the recently completed battleships of Japan and the United States.

May, 1916.

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OCCURRENCES DURING PRINTING.

APRIL 24.—British monitors, destroyers, and other vessels attacked Zeebrugge.

APRIL 25.—German battle-cruiser squadron raided Lowestoft and Great Yarmouth.

MAY 1 (or earlier).—British armed yacht Aegusa (*ex*-Erin) mined in the Mediterranean; also the mine-layer Nasturtium. (For class of the latter, see page 131.)

MAY 3.—Italian airship destroyed by Austrian airmen near Gorizia.

MAY 3.—Zeppelin L 20, after raid on Scottish coast, driven off her course, short of fuel, and said to have been injured by British gun-fire, destroyed near Stavanger. (See pp. 96–100.)

MAY 4.—Zeppelin L 7 shot down off the Schleswig coast by light cruisers Galatea (Commodore E. S. Alexander-Sinclair) and Phaeton (Capt. J. E. Cameron); destruction completed by submarine commanded by Lieut.-Commander F. E. B. Feilmann. (See page 94.)

MAY 4.—French submarine Bernouilli sank Austrian destroyer in the Adriatic.

MAY 5.—Zeppelin shot down by allied warships near Salonika. (N.B.—In addition to the Zeppelins mentioned above, Nos. 15, 19, 73, and 77 are known to have been destroyed in 1916.)

MAY 8.—President Wilson replied to the German Note of May 4 (page 308). He noted the purpose of the German Government to confine the operations to the belligerent fighting forces and to impose the limitations of International Law on its naval commanders, and accepted that Government's "declaration of its abandonment" of the submarine policy announced on February 4, 1915 (*Naval Annual*, 1915, page 239), relying on "the scrupulous execution henceforth of the now altered policy." He took it for granted that the maintenance of this new policy would not be made contingent on negotiations of the United States with any other belligerent Government, though certain passages in the German Note might appear susceptible of that construction. He refused to entertain the suggestion that the rights of American citizens could in the slightest degree be "contingent on the conduct of other Governments." "The responsibility in such matters is single not joint, absolute not relative."

Serbia is said to have acquired her first warship, a destroyer named Velika Serbia.

May 10, 1916.

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INTRODUCTION.

By Earl Brassey.

The causes of the present War were sufficiently discussed in last year's *Naval Annual.* It is useless to repeat. Addressing our illustrious visitors from France, the Prime Minister recently set forth once more the case of the Allies:—"Great Britain and France entered the War not to strangle Germany, not to wipe her off the map of Europe, not to destroy or mutilate her national life, certainly not to interfere with the free exercise of her peaceful endeavours. . . . We have taken up arms to prevent Germany from establishing a position of military menace and dominance over her neighbours." To-day the hopes of peace are still remote. In the situation in which we stand, there is cause for reflection on the part of thinking men.

Meanwhile, it may not be unprofitable to look back to the experiences of the past. To what result were we brought by the wars in which our troops had fought under the ablest Commanders we have ever sent into the field? In the war of the Spanish Succession, under the consummate generalship of Marlborough France was defeated at Blenheim and Ramillies, at Oudenarde and Malplaquet. Marshal Villars was driven back across the north-eastern frontier of France. He dug a deep trench on the line La Bassée-Ypres, which neither of the combatants ever crossed. Finally the war ended with the Treaty of Utrecht. We gave up our contention as to the Spanish Succession. Philip of France became King of Spain. We retained Gibraltar and Newfoundland—then a barren and scantily-peopled island. Our claim to trade in slaves was admitted. It was a sorry conclusion to a war which commenced with conspicuously brilliant achievements in arms.

The struggle with Napoleon ended with not dissimilar results. With a genius for war which has never been surpassed, Napoleon gained overwhelming victories. The tide turned at Moscow. He was finally defeated on the field of Waterloo. The Peace of Paris brought the war to a close. In extensions of territory the gains of our continental allies were unimportant. The boundaries of France were unchanged. Our acquisitions, made at the expense of the Dutch, were chiefly Ceylon and the Cape.

The indications are that at the end of the present War History

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may repeat itself. Never have such streams of blood been shed; never was there such a lavish expenditure of treasure; never so dire, so tremendous a conflict; never were the results so indecisive.

Passing from general policy, any observations on naval matters must be made in the almost complete absence of official information. We claim for the British Navy, and rightly claim, that it is supreme on the high seas. It is with us a paramount necessity to maintain such a Fleet as will effectually secure our communications with the Daughter States beyond the seas, and with the countries from which we draw our food supplies. It is not an aggressive but a strictly defensive policy.

While our supremacy on the high seas is assured, it has thus far been impossible to give complete protection to our ships in narrow waters against the attacks of torpedo-craft. The further the track from the base on which the enemy depends, the better the chance of safety. At the Board of Admiralty, of which many years ago I had the honour to be a subordinate member, the Naval Lords and the leaders of naval opinion outside held unanimously the view that the only safe route to the Far East was by way of the Cape. Sanction was accordingly given by Parliament to a vast expenditure in the creation of a naval base at Simons Bay. Later, an enquiry was held by Royal Commission as to the safety of the food supplies of the United Kingdom in time of war. Once more every naval authority was unanimous for the Cape route. It has been little used in the present War.

Looking nearer home, it is clear that the ports to which trade should be directed in war should be those which can best be reached from the main highways of the seas. Falmouth, the West Coast of Ireland, Liverpool, and Glasgow, offer appreciable advantages, as against the Thames and the Humber. The railway communications with Falmouth should be by a four-line railway. The facilities for loading and discharge should be equal to all requirements. Needless to say that proposals for improvement of the nature indicated would not have been entertained at a time when the possibility of war seemed too remote for practical consideration.

On a late occasion, when the present writer was safely landed at Folkestone, having crossed the Channel in a 23-knot steamer, vigilantly escorted, an interminable line of tramp steamers was in view, steering for Dungeness. There was apparent risk of wholesale sinking by enemy submarines. It would seem that restrictions should be put on the navigation of the seas by vessels of inferior type.

When peace has been concluded, our first step must be to bind

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the Empire together more closely, if possible, than before. The self-governing States, who have so nobly helped us, will demand, and must obtain, a voice in a Council dealing with the foreign affairs of the Empire. They will not favour a policy of meddling with the domestic quarrels of other countries. We may once more recall the observations of Lord Salisbury in his essay on Lord Castlereagh, quoted by the present writer in the introductory chapter contributed to the *Naval Annual* of 1915:—"Undoubtedly the arrangements of Vienna were not absolute perfection; nor have they in all cases been proof against the destructive agencies that prey upon political organisations. All the failures that have taken place have arisen from one cause—the practice of intervention in domestic quarrels. There is no practice which the experience of nations more uniformly condemns, and none which Governments more consistently pursue. The history of the last seventy years is strewn with the wrecks of national prosperity which these well-meant interventions have caused."

Adequate provision must be made to maintain the Navy. Our shipbuilding votes should be not less than double those of any European Power. A consultative Council, consisting of a few officers of the widest experience, should be constituted to examine and report on the designs of all new ships, to be built in accordance with Admiralty policy, before they are submitted to the Admiralty Board. Fewer vessels would be laid down which become obsolete before they are launched.

The standing Army should be greatly strengthened. Behind the Army we should have a trained Reserve, consisting of every man of military age capable of bearing arms. Such is the rule in the Dominions beyond the seas. Such should be the rule in the Homeland.

The writer is precluded by obvious considerations from dealing with questions of general policy in the *Naval Annual*. It is a duty to keep clear of controversy.

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PART I.

CHAPTER I.

THE WORLD WAR.

NARRATIVE OF NAVAL EVENTS AND INCIDENTS.

(*Continued from the* NAVAL ANNUAL *of* 1915.*)

THE great world war has now lasted twenty months. There is as yet no indication of an immediate or even of a speedy limit to its duration. Only by the exhaustion of those nations which forced the conflict, or by the overthrow of their armed forces, will a satisfactory or conclusive peace be obtained. These conditions have not yet been fulfilled. Meanwhile, there are circumstances in the contest which, while they give no cause or excuse for self-complacency or relaxation of effort, may hopefully inspire the Allies to further energy and sacrifice. They arise out of the victories achieved by the exercise of sea-power.

The "sure shield."

The Grand Fleet has proved an effective shield and buckler, under whose shelter far-reaching operations have been, and are being, carried out to the benefit of our friends and the discomfort of our foes. Upon the decision of the struggle for the control of the maritime routes everything else depends, and here the advantage has hitherto been consistently and continuously on our side. If those who would pass the seas on their lawful occasions have not always been able to do so free from molestation or injury, this has been due to the relentless use which has been made by the Germans of some of the newer weapons of war. Yet not all the glaring infractions of the laws of humanity of which our adversaries have been guilty, not all the suffering and loss inflicted upon innocent non-combatants and harmless neutrals, have brought them a shade nearer the attainment of their aims. The raids upon commerce and the war of attrition have both been complete and glaring failures. The loss of carrying-tonnage by submarine assault has been inconsiderable, while our Navy is relatively more powerful than it was at the beginning of the war.

* The period covered by this review is from the beginning of May, 1915, to March, 1916.

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The Navy and its work.

In Germany it is fully realised that it has been the British Navy, rather than the millions of armed men engaged in land warfare, which has presented an insuperable barrier to the plans of the German Great General Staff. Our Allies have many reasons to be grateful for the protection and assistance they have been afforded by the strength and activity of our fleets and squadrons, the endurance, the vigilance, and the competence of our seamen. Had it not been for our interposition, their coasts would have been at the mercy of the enemy, and any hope they might cherish of drawing fresh supplies of men and munitions from oversea must have been abandoned. Our own people, when they remember the fact, must thankfully recognise the deep debt they owe to those who, in face of much opposition, provided for our naval needs, and to those who so promptly mobilised the Fleet, and took measures to place it in full efficiency where it could best execute its mission. At any time, if they were able, by some "bolt from the blue" or "a dashing hussar stroke," to overwhelm our naval defence, it would be unnecessary for the enemy to invade these islands, since with trade paralysed and essential imports barred we should be speedily starved into submission. Happily, the British Navy has loyally and adequately discharged its duties, and almost without firing a shot has demonstrated the potency of superior naval force. Nevertheless, it must not be forgotten that, startling and dramatic as have been many of the occurrences of the sea war, a decisive engagement may yet have to be fought.

In the last issue of the *Naval Annual*, this chronicle was brought down to the beginning of May, 1915, about which time public attention had been drawn from occurrences in Home waters to what was happening in the Mediterranean. The stirring events connected with the attempt to force the Dardanelles naturally attracted more interest than the situation in the North Sea. In the latter theatre, after the action off the Dogger Bank on January 24, 1915, the enemy seemed inclined to accept a position of naval inferiority. The useless bombardments of the East Coast towns which led to that action had ended in disaster, and the attack upon ocean-bound commerce had no better success. Many valuable merchant ships had been sunk, but the loss of the gallant Cradock had been compensated for by the destruction of von Spee, and the disappearance of his squadron effectually put a check to commerce raiding on a large scale. Some misfortune we had suffered from mine and torpedo in the German effort to impair our naval superiority, but as a purely military achievement it had failed. The enemy, having locked up his naval forces in his fortified bases, had turned his attention to a submarine

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blockade, intended to reduce our merchant shipping and cut off our food supply. Already, however, the measures taken in response to this menace were proving successful, and as between the traders and their under-water foes there was a clear balance in our favour.

Dardanelles operations and the Mercantile Marine.

The story of what Mr. Churchill called the gamble at Gallipoli will be told later on, but here may be pointed out some of the maritime effects of the extension of the area of land warfare. It must have been evident from the very inception of the undertaking that even if the Navy did succeed in forcing the Straits a large military force would be needed to reap the benefit of the enterprise. It was a famous achievement when the expeditionary force was put across the Channel unmolested and unharmed, with its reinforcement and supply regularly assured. Now a far bigger problem was to be solved. Not only had the Navy to provide a fighting force for the attack on the forts at the Dardanelles, but it had to ensure safe passage for thousands of soldiers across a much longer distance, and for the swarm of transports, munition carriers, provision ships, oilers, colliers, and other auxiliaries required to keep the troops up to strength and adequately provided with guns, stores, ammunition, and many other kinds of equipment. Fortunately, Sturdee's brilliant victory at the Falklands had released many ships for other service, and there was a surplus of older vessels to draw upon. When, too, the German submarines put in an appearance, the monitor fleet, which had been built with wonderful celerity for an alternative undertaking, became available. But the result of the consequent drain upon the Mercantile Marine, in addition to the losses sustained in the U boat campaign, reduced the carrying tonnage for indispensable trade, and thus in a sense the operations in the Mediterranean set up a blockade of these islands such as not all the efforts of our enemies, past and present, had been able to bring about. So varied and extensive, too, did the calls upon the fighting Navy become that there was serious danger lest the vital position in the North Sea should be prejudiced. We had found ourselves obliged, in circumstances which were not entirely set up by the enemy, to abandon to a large extent the Mediterranean route for trading purposes, whilst our power of using the Navy offensively in the decisive theatre had been considerably modified and reduced.

Admiralty changes.

At the time the last issue of the *Naval Annual* was going to press, a political development took place involving important changes in the Government. It is beyond the scope of this article to investigate the circumstances which led to the formation of a Coalition Cabinet, but the fact must be mentioned because of its consequent effect upon the composition of the Board of Admiralty.

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Divergence of opinion, arising out of the methods by which the enterprise at the Dardanelles was being conducted, had brought Mr. Churchill and Lord Fisher to the discovery that they could no longer work in harmony at the Admiralty. It may be conjectured that one or the other of them would have resigned his post, but when the *personnel* of the new Cabinet was announced it showed that Mr. Churchill had been succeeded by Mr. A. J. Balfour, and that Mr. Balfour had chosen as his First Sea Lord Admiral Sir Henry Jackson. The only other change in the composition of the Board was the substitution of the Duke of Devonshire as Civil Lord for Mr. George Lambert, M.P. Mr. Balfour's many excellent qualities made him highly acceptable to the country as First Lord, and assured him of the loyal and hearty support of the Navy.

On July 4, 1915, Lord Fisher was chosen as President of the Board of Inventions and Research, a new department instituted for the purpose of mobilising the scientific experts of the nation in the interests of the Navy. With Lord Fisher were associated on the Central Committee Sir J. J. Thomson, the Hon. Sir Charles Parsons, and Dr. G. T. Beilby. A consulting panel, composed of scientific experts, was also appointed to advise the main committee, and technical sub-committees, on which professional officers served, were appointed for special branches. In November, Mr. Churchill rather suddenly resigned his office as Chancellor of the Duchy of Lancaster, and proclaimed his intention of taking up military duties in France. Before leaving for the Front, he spoke at some length in Parliament in reference to his naval administration. This is not the place to deal with the matters at issue between Lord Fisher and Mr. Churchill, but it may be stated that the latter complained that in connection with the Dardanelles Expedition he did not get from the First Sea Lord "either the clear guidance before the event or the firm support afterwards" which he was entitled to expect. Mr. Asquith had already indicated, in a speech on November 2nd, that Lord Fisher had from the beginning "doubts and hesitations" about the justification for a naval attack, and, if he gave his consent, it was only with considerable reluctance. The partial acquiescence of the First Sea Lord appears to have been due to a realisation of certain political and diplomatic needs, which overruled his technical objections. When, however, the further operations could only be carried out with risk to important vessels from submarines, and by the withdrawal from Home waters of ships whose presence there he held to be indispensable, he could no longer conceal his disapproval, or remain a consenting party to these measures. After Mr. Churchill's

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charges, Lord Fisher declined to recriminate, and in a short and characteristic speech in the House of Lords on November 16, 1915, said that he left his record in the hands of his countrymen, and was content to wait.

There the matter rested until, on March 7, 1916, Colonel Churchill, as he had become, returned home on leave, and in the debate on the Navy Estimates warned the country against delay in pushing on the programmes of new construction, and advised the return of Lord Fisher to the Admiralty. On the following day, Mr. Balfour made a reassuring speech about shipbuilding progress, and expressed his entire confidence in the professional members of the Board. Although Mr. Balfour asserted at this time that there had been continuity of policy since he had succeeded to office, there were certain changes which had attracted attention. These principally concerned the methods of prosecuting the blockade of Germany, alleged delays connected with the provision for undertaking new construction and repairs, the drain upon the Mercantile Marine and shipping industry for military purposes, and the efficiency of the Royal Naval Air Service, including the defence of London against aerial attack.

Measures of blockade.

Sea pressure is among the more important functions of a navy, and may exert an influence beyond that of a successful engagement. It will naturally have a greater influence after victory, especially if the victory is of the character of Trafalgar, which ensured supremacy to the British arms on the sea. Until this supremacy is assured and asserted, there is always a possibility that naval pressure may be inadequately applied. If, however, the blockade of Germany has been less stringent than it might have been made, this was not due to the action of the German Fleet, but to other influences. The subject is discussed elsewhere in the *Naval Annual*, and all it is necessary to say here is that so far as the Navy was permitted to exercise this function it did so with marked efficiency. The evidence of the effect of its strangulating grip upon German trade is beyond a doubt. For the purposes of the blockade, the route round Scotland to the north-about was patrolled by many cruisers, and the cordon drawn so closely that only a very few vessels escaped their observation. These only evaded detention and search by going round Iceland and using the neutral waters of Norway. The English Channel route was more easily controlled, and a very rigid system of inspection was established at the Straits of Gibraltar. Also, as if to prove the legality of the blockade and its impartiality—although so far as technical terms are concerned, Mr. Asquith refused to be bound by a network of juridical niceties—it was enforced by British

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submarines in the Baltic. Among the duties which fell to our seamen during the period under review, none made greater demands upon their skill, patience, and courage than that connected with the blockade patrol.

New construction.

A vigorous prosecution of warship construction, and preparation of our resources for meeting emergency repairs, was enforced on the Admiralty by the war. An extraordinary large programme of new construction was entered upon in the autumn of 1914, the extent of which was indicated by the late First Lord when he said, on November 15, 1915, that his successor found himself week by week upborne upon an ever-swelling tide of deliveries of craft of all kinds, and of a kind best suited to the purposes of this war, in consequence of Lord Fisher's return to the Admiralty, and the new wave of impulse and enthusiasm he gave to shipbuilding policy and design. The nature of some of the vessels ordered at that time has been revealed. Mr. Ashmead-Bartlett, the official "Eye-witness" at the Dardanelles, was permitted to give descriptions of the monitors and "blister-ships" which arrived there to meet the menace of the submarine. Sir Reginald Bacon, in his despatches, referred to other vessels of the kind, and to the swift motor-boats in his fleet. These fleet messengers were described by newspaper correspondents who visited a naval base in January, 1916. The official reports have also included references to a new class of mine-sweepers, which from their names of common flowers—Arabis, Primula, etc.—became known as the "herbaceous border." A further reference to programmes of construction will be found in the tables of British ships in Part II.

If there has been delay in the forwarding and completion of these programmes, it must in part be traced to the labour difficulties created by the demands of the military authorities for new armies and munition workers. That there were other causes was indicated by a letter of warning from Sir John Jellicoe to the First Lord in March, 1915, in which the Commander-in-Chief stated that he was uneasy about the labour situation on the Clyde and Tyne. "My destroyer dockings and refits," he said, "are delayed in every case by these labour difficulties, and they take twice as long as they need do." Steps were taken to remedy this state of affairs, but Colonel Churchill suggested, in his speech on March 7, 1916, that there were other causes which retarded progress. He expressed the thoughts of those who were apprehensive lest the demands of the Army for men should have had a delaying effect on warship building. He urged the Admiralty to hurl themselves with renewed energy into their task, and press forward without the loss of a day. If, he said, the programme entered into in the autumn of 1914 were allowed to fall

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into arrears, the Navy and the Grand Fleet might find themselves deprived of securities and advantages which his Board had deemed it indispensable they should receive.

Causes of delay.

Mr. Balfour, in his reply to this warning, pointed out that there were three difficulties in the matter of labour—there was the difficulty that a certain number of highly-skilled men had gone to the Front; the difficulty arising from the bad time-keeping in certain yards and among certain sections of the shipbuilding population; and the third cause was that dilution of labour had not been carried out to any adequate extent. Although Mr. Balfour did not mention it, yet another possible cause of delay was revealed by the President of the Board of Trade in connection with the competition set up by the necessity for the replacement of mercantile carrying tonnage due to losses and withdrawals for certain military purposes. He said, on February 17th, that men had been taken off work for the Navy and set to finish forty-five merchant ships which were awaiting completion. The shortage of mercantile tonnage, mainly due to the demands of the military authorities upon the Transport Department of the Admiralty, did indeed require urgent consideration. Whereas the late First Lord, in February, 1915, had stated that the Admiralty had on charter one-fifth of the British mercantile tonnage, it was admitted twelve months later that the shipping withdrawn from the carrying trade by the Admiralty for all purposes was 40 per cent., or had just doubled in amount. To what extent naval shipbuilding has been affected by these difficulties would lead us into the realm of speculation, and it is sufficient to point out the connection. It is manifest, however, that as the existence of the Empire and the cause of the Allies depend upon the Navy, this should have the first call upon the resources and effort of the nation.

Aerial defence.

Raids by naval Zeppelins upon the London district in September and October, 1915, first drew attention to the inadequacy of the defence of the Metropolis against aerial attack. Mr. Balfour, when questioned on the subject in the House of Commons, admitted naval responsibility, and explained that owing to the strain thrown upon the supply of anti-aircraft guns the supply was not equal to the demand. The defence organisation was "still in progress, and still in process of development," but at the moment it was not all that could be wished. Meanwhile, it was officially announced on September 13th that Admiral Sir Percy Scott had been appointed to take charge of the gunnery defences of London against attack by enemy aircraft. Sir Percy made many and far-reaching improvements in the artillery defences, but before his plans were carried into execution a transfer was made in February, 1916, of the

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responsibility from the Admiralty to the War Office, with whom it properly rested, and the Admiral became the gunnery adviser to Lord French, who had then taken over the command of the Home forces. At about the same time that Sir Percy Scott was appointed to command the gunnery defences, in September, the Admiralty announced that a reorganisation of the Admiralty Air Department had been decided upon. Rear-Admiral C. L. Vaughan-Lee would in future be in charge of it, with the title of Director of Air Services. The former Director of the Air Department, Commodore M. F. Sueter, was promoted to the rank of commodore, first class, and appointed in charge of the material side of naval aeronautical work, with the new title of Superintendent of Aircraft Construction.

Visits to the Fleet.

On July 29, 1914, a curtain had been drawn over the movements of the Grand Fleet. Its exact position was wrapped in mystery, and most people knew no more than that it was "somewhere in the North Sea." Although representations had been made to the Admiralty on several occasions for the appointment of an official "Eye-Witness," or for permission to the newspapers to give their readers some idea of the daily life of the seamen, the authorities consistently refused sanction to anything of the kind. The only reported visits to the Fleet during Mr. Churchill's administration were those made by the King. The official attitude towards this subject was changed after Mr. Balfour became First Lord. On July 28, 1915, the Archbishop of York was permitted to publish in *The Times* an account of a fortnight's visit to the Fleet at various bases. Later on, at the wish of the Foreign Office, many visits were made by journalists and others, and their impressions and experiences published in European and American newspapers. Some of these visits were made to the manufacturing establishments and certain of the shipbuilding yards, where the vessels under construction and in various stages of completion were seen. Thus information which had been jealously withheld from the public and foreigners alike became generally known. Undoubtedly by this means our Allies and neutral nations became aware of, and have been widely impressed by, the magnitude of the British Fleet, the spirit of its officers and men, and the indispensable nature of their work to the cause of the Allies. A gratifying feature of the reports made by the newspaper representatives was the unvarying tributes paid to the efficiency of the Fleet and its readiness for action. All they saw bore witness to the extent, and the use made of the resources of the Empire, in efforts towards the maintenance of a high standard of naval superiority. There were doubtless sound reasons which commended the new policy to the Government. Its wisdom and expediency are not

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commented upon here, but the fact is merely stated for its historical import.

In regard to the submarine warfare, it may be said that the measures which proved efficacious in Home waters were also, with modifications suitable to the circumstances, found successful in the Mediterranean. There the greater depth of water, the numerous islands providing supply and shelter, and the larger stretches of enemy coast-line, made difficult at first the task of meeting the menace. It appears to have been overcome by the energy and resourcefulness of the Allied seamen. If certain conditions made the chase and destruction of the submarine more protracted, the business of the U boats was not made more easy by the stubborn and heroic conduct of the merchantmen they sought to sink. The policy of providing liners and traders with guns for their own defence has been questioned, but it was shown to be sound. Never before in its long and splendid history has the merchant navy added greater glories to its record than by the way it has met this "organised campaign of piracy and pillage," and no better testimony to its officers and men could be found than is contained in the list circulated by the German Wireless on Feb. 26, 1916, of eighteen actions in which merchant ships resisted submarine attacks. Out of these eighteen examples in all but three the defence was successful, and the ships were saved. The daring and skill displayed by the seamen of the auxiliary naval services, which are manned from the Merchant Navy and the fishing industries, has won the highest commendation. Nor will soon be forgotten the courage and coolness shown by the people of the transports when exposed to gun-fire and torpedo attacks at Gallipoli. The regard felt for their brethren of the Merchant Service by the officers of the regular Navy was shown in messages sent to the Secretary of the Imperial Merchant Service Guild on the publication of its annual report in March last. Admiral Sir Henry Jackson, First Sea Lord, said that the promptitude with which the country's calls on their merchant officers and seamen had been met was invaluable. The wonderful facility with which they had learnt to carry out their duties as part of a trained fighting force was extraordinary. The Allied nations owe them, added Sir Henry, a deep debt of gratitude for these responses, as well as for their indomitable pluck and endurance.

Merchant navy and submarines.

In any attempt to survey the work of the past twelve months, reference must be made to the splendid service of the Allied Fleets. Russia's seamen in the Baltic and Black Sea have done magnificently. In spite of her great naval superiority, Germany has never held anything more than a very disputed command in the Baltic, and

The Allied Fleets.

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Admiral Kanin, in an interview with a Russian journalist, drew attention to the supreme importance of the efforts of the Russian Fleet in relation to the left flank of the army at Riga, where the check given to the enemy maintained the approaches to Petrograd. France has also rendered valuable aid to the Allied cause by her Fleet in several parts of the world, but principally in the Channel and Mediterranean. Her small craft in the former helped materially in the suppression of the submarine blockade, and in the operations off the Belgian coast; while the narrative which follows shows the various ways in which the French ships and seamen co-operated in the Middle Sea, under such distinguished commanders as Boué de Lapeyrère, Dartige du Fournet, Le Bon, and Guépratte. The Italian Fleet, under the command of the skilful and enterprising Admiral the Duke of the Abruzzi, displayed its prowess last summer with all the energy of a newcomer to the struggle, especially in co-operating with the Army's advance, and it has since done excellent work both in the Adriatic and Ægean. With the fall of Kiaochau and the sweeping of the Germans from the Pacific, the direct share of the Japanese Navy in the conflict ceased for the time being, but in February, 1916, it was reported unofficially that a Japanese squadron had arrived for duty in the Mediterranean, said to be composed of the cruisers Kasuga, Tokiwa, and Chitose, with a number of aircraft.

The North Sea Patrol.

For some time after the beginning of the tenth month of war on May 4, 1915, at which this review opens, there was continued fighting in the North Sea, but it was mainly, if not entirely, connected with the German attempt to enforce a blockade of the British Isles, by employing submarines and aircraft to destroy merchant shipping. To judge from the scanty official reports, it was not often that the work of the patrol in protecting the trade from these assaults brought the seamen into conflict with the Germans; yet it was known that, in face of the new perils, their activity had been sustained with unremitting energy. The changed policy of the enemy after his defeat off the Dogger Bank on January 24, 1915, was continued, and, whatever the activity of his submarines and aircraft, no further attempts at raiding were made, so far as was officially disclosed. Nearly every day, however, a species of guerilla warfare was kept up. Traders and trawlers would be torpedoed or otherwise destroyed by the submarines, or bombed by aeroplanes and Zeppelins. Frequently the hostile small craft would be engaged by the British auxiliary vessels in the locality, and although these occurrences were not revealed, it

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was known, from Mr. Balfour's statement in Parliament, on September 30, 1915, that the Admiralty did not publish details because of the inevitable margin of doubt attaching to the fate of submarines so attacked. All the time, the drifters and small craft engaged in mine-sweeping and other duties continued their operations. Light upon the hazardous nature of these was shed in the Admiralty Memorandum in reference to the clearing away of mines left in the sea off Scarborough by the German cruisers which bombarded that town. One officer mentioned therein, Lieut. G. C. Parsons, was commended for the great skill and devotion to duty which he exhibited in continuing to command his group of trawlers after his vessel had been mined on December 19, 1914. On this day his group exploded eight mines and brought to the surface six more, and three trawlers were blown up or damaged, all in the space of about ten minutes. The endurance displayed in operations like these was also illustrated in the commendation of Mr. T. B. Belton, skipper of the drifter Retriever, who kept his station, marking the safe channel for shipping, when all other drifters present were driven in by the rough weather. As regards numbers, between 2000 and 3000 auxiliary craft of various kinds were authoritatively stated to be engaged in supplementing the Grand Fleet, and the continued immunity of the British shores, the small percentage of loss inflicted upon trading vessels by the brutal and desperate efforts of the enemy, and the many other priceless advantages which need not be enumerated here, all testified to the vigilance and skill, the courage and determination, with which the seamen of the Royal Navy and Mercantile Marine discharged their responsible tasks.

North Sea incidents.

Three incidents during June exemplified the constant menace from submarine attack run by vessels in the North Sea. On the 10th, whilst operating off the East Coast, torpedo boats Nos. 10 and 12 were torpedoed and sunk with the loss of nearly half their crews, including Lieut. E. W. Bulteel, commanding No. 12. On the 30th the Roxburgh, Capt. B. M. Chambers, was hit by a torpedo in the bows when off the Firth of Forth, but steamed into port without any casualties. On June 30th, the destroyer Lightning was damaged off the East Coast, either by a mine or torpedo explosion, and fourteen of her men were afterwards missing. On August 8th, the auxiliary cruiser India was torpedoed and sunk by a German submarine at the West Fiord, Norway, with the loss of 160 officers and men. The commanding officer, Commander W. G. A. Kennedy, and about 140 were saved. Mishaps of this kind were the price necessarily paid for the control of the waters exercised by the British Fleet. Our own submarines, of course, were denied similar

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opportunities to those of Germany by the fact that the High Sea Fleet remained behind its fixed defences. On July 26th, however, Commander C. P. Talbot, in his submarine, torpedoed a German destroyer of the G 196 class near the German coast, and for this clever achievement was, like Commander Max K. Horton in the previous year, awarded the D.S.O.

Raid of the Meteor.

Early in August, the Germans essayed a challenge of the alertness and efficiency of the British watch on the North Sea. They sent out the auxiliary cruiser Meteor to lay mines in the path of the Grand Fleet and possibly to break through on to the trade routes. It was not the first attempt of the kind. In November, 1914, the auxiliary cruiser Berlin was reported to have tried the same plan, but after unloading a few mines she was driven into Trondhjem and interned. That there may have been several other attempts of a similar character was indicated by the exploits of the Möwe. The Meteor, however, had not quite the same measure of success. She was out in the North Sea for a couple of days. On the night of August 7th, this vessel, formerly a Hamburg-Amerika liner, "broke through the enemy's forces," according to the German statement, which referred to her as "a commercial vessel of medium size equipped as a mine-layer." Meeting next day the patrol-vessel Ramsey, Lieut. H. Raby, R.N.R., she sank that ship after an action, the details of which were not published. It was reported that the Meteor was disguised as a merchant-vessel, with armament masked, and flew Russian colours, and the Germans themselves stated that she destroyed the Ramsey as the result of a clever manœuvre. Fifty-one lives were lost in the Ramsey, including that of the captain. On August 9th, the Lynx, destroyer, Commander J. F. H. Cole, struck a mine and sank, with the loss of her captain and first lieutenant (Brian Thornbury) and two-thirds of her crew. Although not officially stated it was generally understood that the mine was laid by the Meteor, as a Berlin wireless message spoke of her having travelled to the Orkney Islands, 550 miles from her base, and laid a large number of mines, which destroyed some British vessels. On the same day, however, a squadron of British cruisers sighted her, and the German captain, realising that escape was impossible, ordered the crew to abandon the ship, and then blew her up, the crew escaping to land in their boats.

Except when an episode such as this brought into mention patrol vessels like the Ramsey, very little light was shed upon their work, but now and then details would be allowed to appear in the newspapers which gave the public an idea of what was going on around these islands. At a court-martial at Devonport on August 4, 1915, a temporary skipper, R.N.R., was convicted of negligence in failing

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to engage an enemy submarine on June 4th, when he was in command of an armed trawler on patrol duty. It was inferred from the reports of this incident, in which one skipper came short of his full duty, that there must have been many episodes in which there was a more satisfactory termination, but of which nothing was revealed. One such, however, became known on Boxing Day, when Rear-Admiral G. A. Ballard, Admiral of Patrols, presented a seaman named Playle, of Grimsby, with the Distinguished Conduct Medal for gallantry in connection with the sinking of a German submarine on July 11th in the North Sea. Playle was the second hand in an armed trawler, which sank the U boat after a sharp fight, and with three others he was wounded in the engagement.

Ships lost.

As in the previous year, the very severe weather in the North Sea in the autumn of 1915 produced its crop of mishaps, of which the chief was the loss of the cruiser Argyll, Captain J. C. Tancred, off the East Coast of Scotland. This occurred on October 28th, when the vessel grounded, and a week later it was officially announced that salvage was impossible. Two patrol yachts were also sunk at this time, the Irene and Aries, both well-known craft, the former being the Trinity House yacht, which on so many occasions had escorted the Royal flotilla at naval reviews and the like, and the latter belonging to the Duke of Leeds. The cause of their misfortune was not revealed. From the Irene twenty-two men were lost and thirteen saved. The Navy also lost two vessels from internal explosion in 1915, the auxiliary ship Princess Irene, which blew up on May 27th at Sheerness, with the loss of about 270 officers and men, including Captain M. H. Cobbe and Commander T. H. M. Maurice; and the cruiser Natal, Captain E. P. C. Back, which likewise blew up in harbour on December 30th, with the loss of more than half her ship's company, including the captain and Commander John Hutchings.

King Edward VII. and Arethusa.

Early in 1916 the wastage of the Fleet was accentuated by mishaps from mines and other causes, and in the first six weeks of the year the vessels lost included the King Edward VII., battleship; Arethusa, light cruiser; Arabis, mine-sweeping sloop; and two submarines stranded off the Dutch coast. The King Edward VII., which had been serving as flag-ship to Vice-Admiral Sir Edward Bradford, commanding the Third Battle Squadron, was announced by the Admiralty on January 9th to have struck a mine and sunk. She had to be abandoned owing to the heavy sea at the time, and fortunately all the crew were taken off before she foundered. A month later the Arethusa, Commodore R. Y. Tyrwhitt, was stated to have struck a mine off the East Coast, and to have been wrecked. About ten men lost their lives in this well-known cruiser, which had won

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fame for her brilliant fights in the Heligoland Bight on August 28, 1914, when she sustained serious damage from larger ships of the enemy, and in the Cuxhaven raid and off the Dogger Bank. On January 6th, the submarine E 17 grounded on the Haaksgrond Bank, off the Texel, and sprang a leak, when a Dutch cruiser came to her assistance and took off the crew, who were taken to the Helder and subsequently interned. On January 21st a second British submarine stranded in this locality, and although part of her crew were rescued by a destroyer the rest were taken ashore by the Dutch cruiser Noord Brabant and interned. Some weeks earlier, on November 4, 1915, a German submarine, described as U 8, stranded on the island of Terschelling, and was towed off by a Dutch lifeboat and interned with her crew.

Arabis. The circumstances in which the Arabis was lost were of a different character. In company with three other vessels of a new class of sloops, she was engaged in mine-sweeping off the Dogger Bank on the night of February 10th, when a German torpedo flotilla carried out a raid. It was understood that hostile surface craft had not been seen so far out in the North Sea for more than a year. But on this night the enemy, according to his own statement, surprised the mine-sweepers, and besides sinking the Arabis put the others to flight. The commander, surgeon, and about twenty other officers and men were rescued, of whom the second-named, Surgeon-Probationer John Hughes, R.N.V.R., died from exposure and immersion in the sea, and was buried with naval honours in the Garrison Cemetery at Wilhelmshaven on February 23rd. The Germans incorrectly described the Arabis as a new cruiser, which had only been in the service a few weeks, and as having a displacement of about 3000 tons, with a speed of 16 knots, and a crew of seventy-eight. They also claimed to have torpedoed a second vessel, but this the Admiralty denied.

No further incident of importance was reported until, on March 25th, the Admiralty made known that another German vessel, the Greif, attempting to escape from the North Sea, had been destroyed, unfortunately with the loss of one of our armed liners. The action took place on February 29th, when the raider, disguised as a Norwegian merchant vessel, was sighted by the armed merchant cruiser Alcantara, Captain T. E. Wardle. Both ships were lost, the British apparently being sunk by a torpedo. The armed merchant cruiser Andes, coming up, promptly assisted to sink the German by gun-fire. Five officers and sixty-nine men were lost on the British side, and five officers and 115 men on that of the enemy.

On March 25th, an attack by naval aircraft was made on the airship sheds at Töndern, in Schleswig-Holstein. An escorting force

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of light cruisers and destroyers, under Commodore Tyrwhitt, was attacked by a German flotilla. In the action which followed, in stormy weather, the British destroyer Medusa was lost in collision, but all her crew were saved by smart seamanship on the part of the Lasso, Lieutenant-Commander V. S. Butler. The Germans also lost a destroyer, rammed by the Cleopatra; and the patrol boats Otto Rudolf and Braunschweig were sunk as well. After the air raid, three seaplanes were missing, and the Germans reported having captured their five occupants.

Belgian Coast Operations.

In dealing last year with the assistance rendered by the Navy to the Allied Army in the region of the Belgian coast, it was pointed out that the Germans never attempted to attack the bombarding fleet from the sea except by submarines, and the German Army derived no help whatever from its powerful sister service while this destruction of positions and troops on its right wing was in progress. Since then the work of the forces entrusted with the bombardment of the Belgian seaboard has been considerably developed, but this condition remained during the year under review, and no attempt of a naval character, other than by submarines, was made by the enemy to interfere with the shelling of the coast by the British ships.

Dover patrol.

In April, 1915, Vice-Admiral Sir Reginald Bacon assumed command of the Dover Patrol. He had previously had experience of the military operations on shore, which must have proved most useful to him in his new post, having served as Colonel Second Commandant in command of the Siege Brigade, Royal Marines, which was reported to have been responsible for the artillery preparation at the battle of Neuve Chapelle. Afterwards Field-Marshal French expressed the indebtedness of the troops "to Vice-Admiral Bacon and our naval comrades for the valuable co-operation of the Fleet."

The first man-of-war to be officially reported as lost off the Belgian coast was the destroyer Maori, Commander B. W. Barrow, which was mined about two miles off the Weilingen Lightship on May 7, 1915. The crew took to the boats as she was sinking, and the Crusader, Lieut.-Commander T. K. Maxwell, lowered her boats to assist in picking up the former; but the Germans opened fire from shore batteries, and the Crusader, after being under fire for an hour and a half, had to leave her boats and retire, seven officers and eighty-eight men in all being taken prisoners. The Maori belonged to the Sixth Flotilla, vessels of which had formed part of Rear-Admiral Hood's force during the early operations off Belgium in October and November, 1914. Although most of those vessels returned to

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England in the latter month, attacks on Zeebrugge and other places were continued intermittently as occasion demanded, so that the German troops were constantly harassed, and even at times kept in fear of an attempt to land. In April, 1915, also, under the direction of Commander H. C. Halahan, batteries of heavy naval guns were mounted on shore in Belgium. Commander Halahan had been attached to the Belgian Army for this duty since January 1st, and during the Allied advance from September 25th onward, when he commanded these batteries, he was officially stated to have displayed a gallantry and devotion to duty worthy of the best traditions of the Royal Navy. The operations of the naval vessels in connection with this land advance are described in the despatch of Vice-Admiral Bacon published in the *London Gazette* on January 12, 1916.*

Monitors employed.

Several of the vessels he mentioned among his assemblage of eighty ships were new, their existence being revealed for the first time. In particular, the employment of a new squadron of monitors indicated a fresh achievement in naval construction. These shallow-draught vessels, which had been designed at the Admiralty in the autumn of 1914, proved their capacity to act in waters which, as the Admiral said, were the natural home of enemy submarines, and to bring into action heavy guns such as were, in time of peace, only mounted in the largest ships of the British Navy. It will be noted that the Admiral speaks of extreme accuracy attained at the long ranges necessary, this accuracy fully justifying the novel methods which were used. In the Dutch papers there were reports of serious damage having been inflicted by the Fleet upon the military works of various kinds in Zeebrugge, and a submarine "dug-out," or bomb-proof shelter, excavated from the banks of the Zeebrugge-Bruges Canal was also said to have been wrecked. Aircraft, French and British, co-operated by bomb attacks and by spotting for the warships' fire. On September 3rd, the French Ministry of Marine stated that their aeroplanes in the previous week had discharged more than 300 4-in. shells on the German naval installations on the Belgian coast. On August 26th, or in the same week as the activity just mentioned, Squadron-Commander A. W. Bigsworth accomplished a brilliant feat off Ostend. By bombs from his aeroplane he destroyed, single-handed, a German submarine, the vessel being observed to be completely wrecked and to sink. Four days earlier French destroyers had given another exhibition of their superiority over the enemy. On August 22nd, the Oriflamme and Branlebas encountered at night a German destroyer off Zeebrugge on outpost duty. She was vigorously attacked, and sank after a stubborn defence.

* *See* Part IV.

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Vice-Admiral Bacon's despatch covered the operations up to November 19, 1915. On subsequent dates, however, it became known from other sources that the Allied seamen's watch and ward off the Belgian coast was being well maintained, and fights in the air between naval machines and those of the enemy also were frequent. On November 28th, Flight Sub-Lieut. T. E. Viney repeated the achievement of Squadron-Commander Bigsworth when he bombed and destroyed a submarine off Middelkerke. He was accompanied by a French officer, Lieutenant le Comte de Sainçay, and the submarine was observed to have her back broken and to sink within a few minutes. On the same day what was probably the first encounter between two seaplanes occurred off Ostend. Flight-Lieut. Ferrand, with an air mechanic as passenger, fought a German seaplane of the Albatross type, which was beaten and dived nose first into the sea and sank. On December 14th, Flight Sub-Lieut. Graham, in an aeroplane, was off the Belgian coast on patrol, when a large German seaplane was sighted and chased, and after a severe engagement it was forced down, exploding as it struck the water. No trace of pilot, passenger, or machine could be found. On February 29th, the Admiralty stated that Flight Sub-Lieut. H. R. Simms attacked and shot down a hostile aeroplane, which fell in flames a short distance in front of the Belgian lines, the combat and result being in full view of the Belgian soldiers in the trenches. All these achievements by the naval airmen demonstrated their prowess and skill in conflict with the enemy. They also indicated that the naval air squadrons which were established along the Franco-Belgian coast, with their base at Dunkirk, early in the war had been maintained there.

Airmen on the Franco-Belgian coast.

The presence of this force at Dunkirk must have been useful, not only in connection with the operations off the Belgian coast, and for keeping an aerial watch over the Channel, but also for dealing with would-be raiders of the English coast. On June 9, 1915, Flight Sub-Lieut. R. A. J. Warneford engaged a Zeppelin which was returning from a raid on the East Coast, and by his brilliant achievement in destroying this vessel he gained the Victoria Cross, which King George immediately conferred upon him by telegram. The airman, attached to the Dunkirk naval aerodrome, chased the Zeppelin from the coast to a point between Ghent and Brussels. There he attacked the airship at a height of 6000 feet, dropping six bombs. The Zeppelin exploded, fell to the ground, and burnt for a considerable time; but the force of the explosion caused the Morane monoplane to turn upside down, and although the pilot succeeded in righting his machine, he was forced to land in the enemy's territory. He succeeded, however, in restarting his machine, and returned

Zeppelin destroyed.

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safely to the aerodrome. The death of this distinguished airman, on June 17th, by an accident while trying a biplane near Paris, was greatly deplored. He was, of course, the first man to destroy an airship in the air. On June 24th, Dr. Macnamara took an opportunity in the House of Commons, on behalf of the Board of Admiralty, of expressing their sense of the great loss the Service had sustained by the death of this heroic young officer.

On the same day that Flight Sub-Lieut. Warneford performed his great feat, two other naval airmen, Flight Lieuts. J. P. Wilson and J. S. Mills, attacked the airship shed at Evere, north of Brussels. Bombs were dropped, and the shed was observed to be in flames. This policy of attacking hostile airships in their homes was naturally of the highest value in reducing the chances of air raids on England or anywhere else. It reproduced in the air the traditional naval practice of this country to seek out an enemy's fleets and destroy them. Nor was it only Zeppelin raiders which called for the attention of the naval airmen. German seaplanes also showed that they were quite capable of crossing the short stretch of water between the Continent and England, and making bomb attacks. Such exploits increased in frequency early in 1916. On January 23rd, there were raids on Dover and Hougham by an aeroplane and by two seaplanes, but no naval or military damage was caused. Another raid on Dover was made next day, and on February 20th Lowestoft and Walmer were visited and a few bombs dropped. On March 1st, a seaplane passed over a portion of the south-east coast and dropped several bombs, and one baby was killed, no damage of any importance being caused. Two days afterwards the French authorities at Dunkirk reported that a German seaplane had been picked up on March 2nd three miles north of Middelkerke Bank, having come down at 9 p.m. on March 1st when returning from England. One of the observers was drowned, and the other picked up and made prisoner.

Zeebrugge attacked.

As regards the naval attacks on the Belgian coast subsequent to Admiral Bacon's despatch, no official information was published, just as none had been issued concerning the operations from November 9, 1914, to August 22, 1915. According to Press reports, however, the naval forces bombarded the German positions on November 30th, December 20th and 30th, January 10th, 16th and 27th, and at other times subsequently. From February, 1915, for a twelvemonth no air raid on a large scale left our shores; but on March 20, 1916, a force of about fifty British and allied aeroplanes and seaplanes, with fifteen fighting machines, attacked the aerodrome and harbour works at Zeebrugge and Houttave, near Ostend. All the machines returned

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safely. Arising out of this raid a skirmish took place between three German destroyers, which had been driven out of the harbour by the bombs, and four British destroyers. The former fled back to port with some damage from shell-fire.

THE SUBMARINE BLOCKADES.

German failure.

It was noted in this review a year ago that the attempted blockade of the British Isles by German submarines had failed in its purpose of cutting off the food supply of the country. Nevertheless, it dragged on its weary existence for some months afterwards, with fitful violence. It apparently took the Germans a long time to grasp the fact of its failure. The people, urged by such arch-advocates of ruthlessness as Count Reventlow, were continually led to expect great things from the U boats' campaign. By fresh coups of various kinds, desperate in conception and brutal in execution, it was sought to reinforce home sentiment. Of such were the destruction of the Lusitania and the sinking of large numbers of fishing craft. But at length it was realised, as Mr. Balfour said, that deeds which were merely crimes in May in September were manifest blunders. To this cause the First Lord ascribed the amazing change which came over the diplomatic attitude of Germany towards the United States in the latter month. Support of this view was, in fact, forthcoming a little later from the German side, for Captain Persius, in various articles, showed the futility of the economic strangulation of England being accomplished by the under-water boats. "Regarding the effectiveness of our U boats in the trade war," he said at the end of 1915, "one hears frequently nowadays views that bear little resemblance to the views uttered a year ago. Then, alas, hopes were extravagant, owing to a disregard of facts which the informed expert, indeed, observed, but which remained concealed for the layman." On the anniversary of the declaration by the Germans of a war zone, in February, the same officer again deprecated the exorbitant hopes entertained at first regarding the blockade. He expressed the opinion, however, that the results achieved by the submarines were surprisingly successful, considering the technical and military difficulties with which they had to contend, and also what he termed the political restraints placed upon their action.

The German blockade reached what was commonly regarded as its height with the destruction of the Lusitania off the Old Head of Kinsale about 2.30 p.m. on the afternoon of May 7, 1915, when over 1100 lives were sacrificed. Yet, in its purely technical aspect, this calamity in no wise differed from scores of others. On

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Unarmed vessels sunk.

March 1, 1916, the Secretary of the Admiralty issued a list of forty unarmed British vessels which were torpedoed and sunk by enemy submarines without warning during 1915, and another list showing fourteen neutral vessels similarly dealt with.* Neither list was of an exhaustive character, it being admitted that there were several other cases which, although there was no reasonable doubt that the vessel was sunk by torpedo fired from a submarine without warning, had been omitted in the absence of actual proof, due to the lack of survivors or from other causes. It will be readily understood that torpedo attack was often an extravagant policy, even if these costly missiles could be relied upon to hit, yet it is probable that many more missed their mark than reached it. Incidentally it may be mentioned here that these torpedoes were not, as required by the Hague Convention, set to become harmless after a specified time. The French Ministry of Marine announced on April 13, 1915, that an examination of torpedoes from German submarines which had been found in the English Channel proved that their immersion apparatus had been systematically jammed, thereby converting the torpedo into a floating mine. Other methods of destruction were brought into play as the submarine war on merchant shipping proceeded. Guns came to be used more often, and to grow in range and power, and in cases where they alone were used for attacking purposes some protracted fights took place. Merchant captains, on sighting a periscope, would turn their sterns promptly to the raider and put on their best speed, which baulked the submarines of their chances of getting off a torpedo, and resolved the contest into one between the temerity of the U-boat captains, who must have feared sometimes that the sounds of firing would bring some patrol vessels in their wake, and the endurance and fortitude of the merchant masters. On other occasions, where flight was impossible, and merchant ships obeyed the summons to stop, the vessels would be destroyed by explosive bombs placed in the vital parts. A variant of this method was the setting on fire of certain classes of cargo vessels. At times, too, aircraft endeavoured to take part in the work, both Zeppelins and aeroplanes, but the results must have been very disappointing to the Germans. Experience showed that showers of darts from aeroplanes could be nearly always avoided by steering a zigzag course. As to bombs from Zeppelins, it was understood that no vessel was destroyed in this way for nearly a year after the blockade began. The first victim was believed to be the coasting collier Franz Fischer, a captured enemy vessel, which was struck amidships on the night of February 1, 1916, while anchored off

* *See* Part IV.

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the Kentish Knock, by an explosive bomb from a Zeppelin, and sank within two minutes. It is unnecessary here to give details showing the depths of cruelty to which the German seamen descended in pursuance of their orders. As Mr. Balfour said, their methods must have been adopted with extreme reluctance and many searchings of heart. "German sailors," said the First Lord, "are gallant men, and gallant men do not like being put on a coward's job. They know well enough that in the old days, which we are pleased to regard as less humane than our own, there was not a privateersman but would have thought himself disgraced had he sent to the bottom unresisting merchant ships with all hands on board."

British answer to the submarine campaign.

How did the British Navy answer the German submarines' piratical assault on the sea traders? That is a question which cannot at present be replied to at length, but when the war is over, it will assuredly make one of the most dramatic and engrossing chapters in the history of the conflict. Meantime, the British public only know in a very general way that the submarine threat was met promptly and efficiently, and they experience on that account a deeper sense of confidence in their seamen. Speaking to a Press correspondent at Petrograd in October last, the Russian Minister of Marine said that "the British Navy has adapted itself splendidly to the new forms of naval warfare, and has defeated, in a manner worthy of its best traditions, the operation of the most important new weapon—the submarine—upon which Germany so largely relied." Early in the blockade, the destroyers of the Patrol Flotillas, assisted by armed trawlers and similar small craft, took the offensive against the U boats, and the destruction of three—U 8, U 12, and U 29—was announced during the month of March, 1915. After this, however, the Admiralty ceased to publish statements regarding such losses, for, as a rule, the enemy had no other sources of information as to the time and place at which they occurred. There was also what Mr. Balfour described as an inevitable margin of doubt attaching to the fate of a submarine when attacked, as, although she might disappear, this would not necessarily mean that she was mortally injured. On August 26, 1915, however, in reporting the sinking of a boat off Ostend by Squadron-Commander Bigsworth, it was admitted by the Admiralty that the German submarine losses were "important."

About this time Press correspondents began to be allowed to visit the Grand Fleet, and in describing their experiences they referred to a map shown them, on which were marked places where German submarines had been sighted, with the results of the attacks on them classified under "captured," "supposed sunk," and "sunk." Officers in the Fleet stated that these boats were caught or destroyed by

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gun-fire, by ramming, by explosive bombs, by nets, and in other ways. In the circumstances, calculations were naturally rife as to the numbers accounted for, and the estimates varied up to as many as sixty-seven, which was the number mentioned by an American journal at the end of September, 1915. Regarding the treatment of submarine prisoners, the Admiralty, on March 8th, said that honourable treatment could not be accorded to men who had been guilty of attacking and sinking unarmed merchantmen, and firing torpedoes at ships carrying non-combatants, neutrals, and women. The men were, therefore, segregated and placed under special restriction, but were, of course, dealt with humanely, given opportunities for exercise, provided with German books, subjected to no forced labour, and better fed and clothed than British prisoners of equal rank in Germany. But for each man thus placed in naval detention barracks the Germans cast a British Army officer held prisoner of war in Germany into military prisons, and threatened "corresponding harsher treatment." One of the first acts of Mr. Balfour, on becoming First Lord, was to announce that in future the treatment accorded to all German prisoners would be identical, although this abandonment of the policy of segregation did not, said the First Lord, indicate any change of opinion as to the character of the acts in which these prisoners had been concerned. A Canadian Army surgeon who arrived at New York on February 10, 1916, from Liverpool, gave to a Press representative an experience he had in regard to a captured German submarine. In the nets placed in various positions by the British Navy, he declared, seventeen boats had been caught. He was permitted to descend into the interior of one of these after it was towed ashore, and therein he saw the dead bodies of the crew. To save them from death by suffocation, he said, the commander had apparently shot all his men and then himself.

Statistics of the sunken vessels.

The weekly table showing the arrivals and sailings of oversea steamers to and from ports of the United Kingdom, and the number sunk by the enemy, continued to be issued by the Trade Division of the Admiralty War Staff until October 22, 1915. To the week ending October 20th these weekly statistics showed that 196 merchantmen were destroyed by submarines out of the 10,123 steamers which, according to "Lloyd's Register Book," constituted the British Mercantile Marine in 1914. In the week ending July 21, 1915, no ships were sunk, but during the following month the submarines had their biggest success, when they destroyed twenty steamers, of 79,727 gross tons, in the week ending August 25th. The four weeks of September showed that the victims numbered twelve, three, two, and six respectively. This will serve to illustrate the fitful and spasmodic

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efforts of the submarines, and of how varied and uncertain was their action. The futility of depending upon craft of such a character to enforce a blockade is obvious. As to the relative effect of their depredations, this was annoying rather than serious. It aggravated the scarcity of carrying tonnage for the nation's food supply, which developed towards the summer and autumn of 1915, but was not primarily the cause of it. The amount of tonnage under charter for naval and military purposes was shown from official sources to be in the proportion of 40 per cent., but, on the other hand, even the Germans claimed to have sunk only 5 per cent., and this figure was obviously exaggerated. On December 15th the German Wireless claimed that German and Austrian submarines had destroyed altogether during the war a total of 508 ships, and even if this figure could be accepted as reliable, allowance would have to be made for the many trawlers and similar small craft included in it. Mention of the trawlers is a reminder of the varied fortunes of the blockade, and its constant change of venue. At first the boats became active in certain favourable localities in the Channel—off Beachy Head and similar prominent coast marks from which they could take bearings—in the lower part of the North Sea, and in the Irish Sea. As these areas were made too hot for them by the British patrols, they tried others. In May it was noted that their operations were conducted further afield, and the waters to the south of Ireland appeared to be infested. It was at this time that the probability of some boats getting out to the Mediterranean was more generally realised. In August, again, the submarine attacks appeared to be directed principally against the fishing fleet off the North of Scotland, steamers on the Archangel route, and those of Scandinavian nationality. On August 16th, one submarine commander caused no small amusement by appearing off the Cumberland towns of Parton, Harrington, and Whitehaven in the early morning, and discharging several shells at the Cumberland coast in this neighbourhood. He had evidently read his British naval history, and knew of the exploit of Paul Jones in this place.

Enemy professions.

On September 1, 1915, a few days after the torpedoing of the Arabic off the south of Ireland, with the loss of forty-seven lives, the German Ambassador in the United States informed Mr. Lansing, the American Secretary of State, that: "liners will not be sunk by our submarines without warning and without ensuring the safety of the lives of non-combatants, provided that the liners do not try to escape or offer resistance." The worth of this pledge was indicated three days afterwards, when the Allan liner Hesperian was torpedoed without warning when outward bound, and, owing to the severe

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damage caused, she foundered on the morning of September 6th, after remaining afloat for thirty-five hours. On October 5th, the German Government affirmed that the orders issued by His Imperial Majesty to the commanders of German submarines were so stringent that a recurrence of incidents similar to that of the Arabic was considered out of the question. Commander Schneider, of the submarine which sank the Arabic, was also said to have reported his conviction that the liner intended to ram his boat. Moreover, the German Government "regretted and disavowed" his act, and stated that he had been notified accordingly. A White Paper (Cd. 8144) issued by the British Government on January 4, 1916, made it clear, however, that the submarine which destroyed the Arabic was herself sunk very shortly after by the patrol boat Baralong, in regard to the methods of which the Germans made a complaint through the medium of the United States. Later information gave the number of the German submarine as U 27, and it was in regard to the fate of this boat that the Hamburg *Nachrichten* asked in September: "Why is the British Admiralty silent about the U 27? What has become of U 27?" The undoubted loss of this submarine, therefore, was a proof of sheer mendacity on the part of the German Government, for they could never have notified Schneider of his reprimand, and it was highly improbable that even his report of the sinking of the Arabic, had he time to make one, ever reached them.

Diplomatists and seamen.

The negotiations in August revealed one thing, and that was the divergence of view or conception of the diplomatists on the one hand and the seamen on the other. The former, as was shown by the series of American notes to Germany, and by the promises made by German Ministers, hoped to achieve their purpose by argument. The latter knew well that, whatever the legal and international points involved in the discussions might be, only force could bring the war to a satisfactory conclusion. The Bernstorff promises gave rise to rumours that Grand Admiral von Tirpitz had been "thrown over," and that he had relinquished his duties in the Navy Office owing to ill-health. There was no substantial ground for these reports, and that the altered tone and attitude of the diplomatists would have no effect whatever upon the actual course of the submarine operations was made clear by Count Reventlow when he said at this time: "Germany's submarine war against England's sea-borne trade will be extensively and intensively increased the longer the war lasts." This difference between theory and practice—between the conciliatory promises of the diplomatists and the actual work of the seamen—was again marked when on February 10, 1916, Germany handed to the neutral Powers a notice

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that from March 1st she would treat all armed merchantmen as warships and attack them on sight. Plausible excuses for this, in which the blame was laid on England, were put forward by the diplomatists. But the seamen must have known, of course, that their policy already was to sink at sight whenever they got the chance, and in practice the new threat was therefore meaningless.

The Blockade of Germany.

The British system.

The naval aspect of the policy of stopping supplies to and from Germany, the inauguration of which in March, 1915, by way of reprisal for the enemy's submarine attacks on merchantmen, was referred to last year, calls for little attention at present, as published information in regard to it is scanty. The world was informed that the British Fleet had established a "cruiser cordon" to carry the policy into operation, and certain neutral travellers have described the working of this, and its effectiveness for the task allotted to it. Naturally, there were cases of ships getting through the blockade, outwards and inwards. It was demonstrated by the events of the Civil War in America how this achievement might be performed successfully, and in those days the squadron of watching cruisers was able to be stationed much closer to the blockaded port, and the meshes of the net were smaller. Since the runners into Charleston and other places so often succeeded in their enterprise, it was not to be wondered at if under more modern conditions, and the changes due to the existence of the submarine, even the strongest guard should occasionally be evaded. At the time when the Möwe broke through on to the trade routes and returned safely, it was reported that there was a body of opinion in America which regarded her success as rather a blow to those who advocated the declaration of a formal blockade. Such a view, however, took no account of the unsuccessful attempts of the kind, which, although authoritative information of a complete nature was lacking, were certainly more numerous, as the examples of the Berlin, Meteor and Greif showed.

Patrols.

On August 7, 1915, the Admiralty published a list of awards to officers and men "in recognition of their services in patrol cruisers since the outbreak of war." Attached to the list was a note to the effect that the Commander-in-Chief of the Home Fleets spoke in the highest terms of the manner in which these cruisers had performed their arduous task, especially during the winter months, under exceptionally bad weather conditions. "They have suffered severe losses," said the Admiralty, "both in officers and men, and have been

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exposed continually to dangers from mines and submarines." Most of the officers were shown by the last previous "Navy List" to have been serving in armed merchant cruisers, of which several had been equipped and commissioned to replace old protected cruisers of the Edgar type in Rear-Admiral Sir Dudley De Chair's command. This was another instance—the utility of these merchant vessels for the duties of detention and search—of the value of the resources of the Mercantile Marine for war purposes. As regards the many other vessels engaged in examination work, it was only on the occasion of an accident—such as the sinking of the Char after a collision in the Downs, and the fire on board the Peel Castle in the same neighbourhood—that their character and situation were revealed. At the end of February, 1916, Lord Robert Cecil, Under-Secretary of State for Foreign Affairs, was appointed to take charge of the departments and committees concerned with foreign trade and the blockade, and Rear-Admiral Sir Dudley De Chair was appointed to advise him.

The Baltic.

When a party of Russian journalists visited the Grand Fleet in February last, Admiral Sir John Jellicoe, in a speech of welcome, said: "The Russian Navy has won our admiration by its progress and efficiency. Nothing could give us greater pleasure than to be able to fight side by side with the Russian sailors against our common foe. It would be difficult for us to go to the Baltic, but I will not say impossible. I hope the day may come when our ships will engage the enemy together." The possibility referred to by the Commander-in-Chief was a reminder that for all practical purposes the North Sea and the Baltic constituted one theatre of war, as neither could be considered adequately apart from the other. Two events, at least, during the past year illustrated the mutual helpfulness of this—one the arrival of the British submarines in the Baltic, to co-operate with Russian boats in attacking the enemy's warships, and afterwards setting up what was virtually a blockade of German shipping; the other the Russian coup at Memel, where the fleet showed its alertness to take advantage of the withdrawal of the German squadron, which may very likely have been intended to co-operate in some enterprise in the North Sea. Apart from this inter-relationship, the operations in the Baltic during the period under review were quite distinct from, and had no direct connection with, those in the other theatres of the sea warfare. They were, too, principally concerned with the fortunes of the land struggle.

A summary issued by the Russian Admiralty at the end of

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March, 1915, showed that during the early part of the war the German Fleet confined its activities to observing the Russian coasts. It then undertook offensive operations on a small scale close to and against the coasts, and skirmishes occurred between the Oleg, Bogatyr, Admiral Makaroff, Pallada, and other vessels in the Russian Navy, on the one hand, and the Blücher, Augsburg, Magdeburg, and smaller ships on the other. During these affairs, which occurred at various times, the Germans, although they often had the superiority of force, invariably declined battle with the Russians, and thus the outcome was indecisive. The German submarines, however, were active, and sank the Pallada. This was the only attack which proved successful out of twenty which were made in two months, and the enemy lost two boats meanwhile, one rammed by the destroyer Letutschi, and the other sunk by shells from the Bayan. "Generally speaking," the report concluded, "the Russian Fleet during these months gained much experience in dealing with the modern weapons at the disposal of the Germans. In numbers the Russian Fleet has not diminished, but is, on the contrary, more powerful now than at the beginning of the war, while the morale and confidence in the future of the Russian sailors is stronger than ever." Unfortunately, Admiral von Essen, the Commander-in-Chief, did not live to witness the further consummation of his efforts in training his fleet, passing away on May 20th, in hospital at Reval, from pneumonia. Sir John Jellicoe and Sir David Beatty were among those who associated themselves with the message in which the British Admiralty expressed their profound sympathy with the Imperial Russian Navy in the loss sustained by the death of Admiral von Essen. He was succeeded as Commander-in-Chief by Vice-Admiral Kanin.

Russian naval operations.

It was on March 18th that a Russian military detachment, supported by the Fleet, made a raid on Memel, the town being captured and held for three days. The troops then fell back on Russian territory, having achieved their purpose of diverting the attention of the enemy and ascertaining his numerical strength and defences. The Germans replied to this bold and useful stroke by the futile bombardment of coast villages in Courland by a squadron composed of seven battleships and several torpedo craft. Libau was also shelled. On May 9th this place, once a fortified port, but since 1910 an open coast town, was captured by the German Army, supported by their fleet along the littoral. Next month the German ships were operating off Riga, and a submarine sunk the Russian transport Yenissei on the 6th. Three weeks later Windau was bombarded, with the object apparently of covering a German landing; but a torpedo attack by the Russian flotilla obliged the ships to retire,

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and a German mine-sweeper was sunk. On July 2nd, an action took place from 9.0 to 11.30 a.m. off the east coast of the island of Gothland, when in the fog the German cruiser Roon, some light cruisers, mine-layers, and torpedo craft were engaged by the Russians. The mine-layer Albatross was damaged and forced to run ashore, and the Swedes refloated her on the 24th. The German ships, detached from their Baltic Fleet, called for assistance to the Albatross, and, on this arriving in superior force, the Russians retired with insignificant damage. At 3.0 p.m. on the afternoon of this day Commander Max K. Horton in his submarine hit with two torpedoes a German battleship of the Deutschland class, understood to be the Pommern. He was awarded the Fourth Class of the Order of St. George by the Tsar, who also conferred the Cross of the Order upon the other members of the submarine's crew. A further success to the British flotilla was the sinking, on July 30th, of a large German transport, reported to be conveying reserves to Libau for the army of Von Below. This vessel was torpedoed and destroyed by the submarine commanded by Commander Noel F. Laurence, who was also decorated by the Tsar.

Riga Gulf fight. British sub-marines at work.

The month of August, 1915, was marked by a determined German attempt to gain possession of the Gulf of Riga. On August 8th, a force consisting of nine battleships, twelve cruisers, and several torpedo-craft was reported to have made persistent attacks at the entrance, but these were frustrated, the Russian seaplanes co-operating with bomb attacks in the defence. A Berlin *communiqué* said that all that was undertaken was a reconnaissance for the purpose of ascertaining the position of the Russian mines, but it was admitted that two small mine-sweepers were lost in this operation. The main German attack, however, developed in the week from August 16th to 21st. Aided by fog and mist, the Germans followed up their mine-sweeping and removal of obstructions by forcing an entrance into the Gulf on August 18th. Stubborn fighting occurred in various places, especially in Moon Sound, where the Russian gunboat Sivoutch was sunk after a brave defence. For the next two days the Germans made reconnaissances in various directions, but on August 21st, "in view of the losses sustained, and considering the barrenness of the effort," said a Petrograd *communiqué*, the enemy evacuated the Gulf. Two German cruisers and eight torpedo craft were claimed to have been put out of action or sunk during the week's fighting, chiefly by mines. The defending flotilla was capably handled by the Russians, and the old battleship Slava was also mentioned as having co-operated in its work. Owing to a misunderstanding, a report was current that a German military force had attempted to

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land near Pernau, in the north-east corner of the Gulf, but had been annihilated by the coast artillery. As a matter of fact, the ships sunk off Pernau were empty steamers scuttled by the Germans themselves to block the channel. At the same time, the net result of the undertaking was a decided check to the German military plans. It revealed the courage and alacrity of the Russian seamen, and afforded a further illustration of the futility of launching such an expedition across waters the command of which was still in dispute. One event which gave great satisfaction in England was the British submarine attack on the battle-cruiser Moltke, on August 19th, by Commander Noel F. Laurence. According to some particulars given to a correspondent of the *New York World* by Captain von Levetzow, commanding the Moltke, she was not in Riga Bay at the time, but some distance off there, steaming abreast of the Seydlitz, which was about 400 yards off on her port side. The torpedo came from the other side of the Seydlitz, and had evidently been discharged at that vessel, missed her, and caught the Moltke in the bow. The bulkhead system worked beyond expectations. The torpedo struck the vessel in the bow torpedo chamber, one side of which was crushed in. This and an adjoining compartment quickly filled to the extent of some 435 tons of water, but as it would take something over 1500 tons to sink the Moltke, the damage was not serious. In fact, continued the German story, the cruise was continued for two days longer. On being dry-docked, it was found that eight torpedo-men in the fractured compartments had been killed or drowned, and four of the bodies had been washed out by the sea. The torpedo tube was broken, and three torpedoes had been smashed by the explosion. Concluding this interview, von Levetzow said the experience was of great value, and had made the officers and crew somewhat indifferent to torpedoes. He considered a shell from a big gun, when it hit a vital spot, far more dangerous.

Submarines' success.

The feature of the Baltic operations during the last three months of 1915 was the campaign of the Russo-British submarines in sweeping German commerce from the sea. A flotilla of British boats had been placed under the command of the Russian Admiral some months earlier, if the report that one of these craft had torpedoed the Gazelle on January 25, 1915, was correct. When the successes of Commanders Max Horton and Noel Laurence occurred in July, 1915, the presence of British submarines in Baltic waters was proved beyond doubt. An occurrence which showed that reinforcements were being sent to them took place on August 19th, when E 13, Lieut.-Commander Geoffrey Layton, grounded on the Danish

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island of Saltholm, on her way through the Sound into the Baltic. All efforts to refloat her failed. A Danish torpedo-boat gave her the usual notice that twenty-four hours would be allowed to get off, and three Danish vessels anchored near her. A few hours later two German destroyers arrived, one of which, at a range of 300 yards, fired a torpedo, which exploded on hitting the bottom close to the stranded submarine. At the same moment the destroyer fired with all her guns, and Commander Layton, his boat on fire, and unable to put up any defence owing to being aground, ordered the crew to abandon her. The seamen were then fired upon, while in the water, with machine-guns and shrapnel. One of the Danish torpedo-boats immediately lowered her boats and steamed between the submarine and the German destroyers, and this chivalrous act forced the Germans to cease fire and withdraw. Of the thirty in E 13's crew, fifteen were killed, and the Danish Government courteously sent their bodies to England in charge of one of their naval officers.

Baltic blockade.

It was about the end of September when the Allied submarines began to turn the tables on the Germans by attacking their Baltic trade. Within a few weeks the new policy had set up a state of blockade, which was of great effect in view of the importance of the contraband traffic in minerals from Scandinavian ports which was formerly carried on. On October 30th, the *Liverpool Daily Post*, with the sanction of the Press Bureau, published a list of twenty-one steamers reported sunk between October 11th and 23rd. Submarine E 19 was prominent at this time, her victims including the Nicomedia, of Hamburg, a 4391-ton vessel, and others. The effect of these losses was naturally to drive the great bulk of the floating trade into its ports. On October 15th a report stated that thirty-seven of some fifty steamers engaged in the metal traffic were thus held up in Swedish harbours. The work of the Allied flotilla was accomplished without any sacrifice of life. None of the elements introduced and practised by the German submarines in their war against merchantmen marked its progress. In fact, the comparative mildness of the Russian and British methods was shown by the Foreign Office statement on December 1st concerning the Germania. The German wireless had stated that a dynamite bomb, placed on board by the British, had destroyed this vessel in Swedish waters, but in correction of this it was shown that the Germania was overtaken by a submarine, and in trying to escape ran on a sandbank. The submarine then entered Swedish territorial waters to save the crew and help to salve the ship, but found her abandoned. After an hour's fruitless effort to tow her off, the submarine gave up the task, as the water was gaining in the steamer's engine-room, so that the explosion mentioned by the

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Germans must have been due to sea water coming into contact with the boilers.

Effects in the Baltic.

Having failed, although an extensive mine-laying policy was adopted, to keep British submarines out of the Baltic, the Germans were equally at a loss to deal with them in that sea. Mr. Carl von Wiegand, in a despatch from Berlin to the *New York World*, could only declare that the problem was causing the German Admiralty serious thought. It would appear that a system of convoys was tried, and that night voyages were resorted to as much as possible, but ships still continued to be sunk, and even their convoying warships as well. On October 15th the steam ferry from Trelleborg collided with and cut in two the torpedo boat escorting her across to Prussia. On the 18th a German minelayer, or patrol boat, guarding the approach to the Langeland belt, was blown up, apparently by a torpedo from a submarine. On October 23rd the armoured cruiser Prinz Adalbert was torpedoed and sunk by a British submarine off Libau with the greater part of her crew, including Capt. Wilhelm Bunnemann. This was in the daytime, in hazy weather, and it was reported that two torpedoes struck the ship simultaneously, from which it was assumed that the submarine was equipped with the new double torpedo-tube system. On October 27th the Russian submarine Alligator captured a German steamer near the Aland Islands and brought her into port. On November 7th the light cruiser Undine was sunk off the south coast of Sweden by Commander F. A. N. Cromie. On December 17th, as if to close up the year, the submarines brought off a double coup by sinking the light cruiser Bremen and a torpedo boat in the Eastern Baltic. By diverting the attention of the German Navy to organising and protecting, if possible, its sea commerce, the submarine campaign took off the pressure from the Russian Fleet, and that the latter made good use of its greater freedom was shown by its raid on Dome Ness on October 22nd. At this point on the Courland coast, at the entrance to the Gulf of Riga, the warships carried out a bombardment, as they also did at Petragge and Gipken, points on either side. A landing party was then sent ashore, a German detachment beaten off, with a loss of forty-three killed, and after military objects had been destroyed several prisoners and a quantity of war material were captured. On November 16th the Russians again showed their ability to harass the enemy in his own territory by shelling Petragge. In the middle of February the Germans laid a new minefield along the Falsterbo Reef—a great menace to coastal navigation, as the loss of several Swedish vessels showed.

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The Dardanelles.

On January 28, 1915, the War Council definitely sanctioned the plan for an attack on the Dardanelles, and the Admiralty were directed to execute it. The ships chosen for the task were those of what Mr. Churchill called the "surplus fleet," comprising the Majestic, Canopus, Swiftsure and Implacable types. They were strengthened by the addition of the Agamemnon and Lord Nelson, the latest pre-Dreadnoughts, and by the Inflexible, battle-cruiser, and the Queen Elizabeth. The last-named had just been completed, and was the first 15-in.-gunned, oil-fired battleship to be commissioned for the British or any other navy. After the manner in which great fortresses, reputed to be the strongest in Europe, had collapsed under the fire of 15-in. howitzers, the proposal to add the Queen Elizabeth to the bombarding fleet had an impressive appearance, but the gunnery conditions were not, of course, analogous. The Dardanelles fleet was swiftly concentrated from all parts of the world. Several ships besides the Queen Elizabeth came from England. The Inflexible had but a few weeks earlier been fighting off the Falklands, where also the Canopus had been guardship. The Triumph came from China, and the Ocean had been mentioned in operations in the Persian Gulf. Other vessels had been set free for the operation by von Spee's destruction. The French, who throughout supported the enterprise with a loyalty and valour beyond description, sent a squadron of some seven battleships, under Rear-Admiral E. P. A. Guépratte, in which the Suffren and the three of the Charlemagne type were the principal vessels, and also some cruisers. The Russian Fleet was represented by the cruiser Askold, Captain Ivanoff.

Bombardment of the Dardanelles entrance.

On February 19th, Vice-Admiral S. H. Carden began the naval attack at 8 a.m. by a deliberate long-range bombardment of the forts at Cape Helles and Kum Kaleh. In the afternoon a portion of the battleship force closed to engage the forts with secondary armament. The Admiralty announced next day that "the forts on the European side were apparently silenced. One fort on the Asiatic side was still firing when the operation was suspended owing to failing light." No allied vessel was hit, and the action was renewed on the 20th after aerial reconnaissance. Unfavourable weather, with low visibility and a strong south-westerly gale, interrupted the operations for the next four days, and they were renewed on February 25th, when all the forts at the entrance were stated by the Admiralty to have been successfully reduced. Mine-sweeping in the Straits was then begun under the protection of cruisers and small

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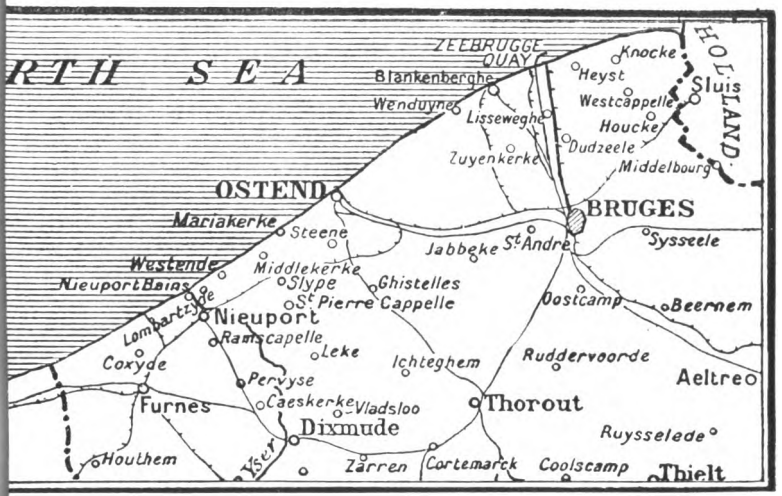

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craft, and an area up to four miles from the entrance was swept during the 26th. Then further delays were caused by the weather. A strong north-easterly gale blew with rain and mist, rendering long-range fire and aeroplane observation difficult. A resumption was made on March 1st, and on that night mine-sweepers cleared the waters up to a mile and a half of Cape Kephez under fire. Four French battleships on this day bombarded batteries and communications at Bulair. On the 2nd seaplane reconnaissance was again impossible, but three battleships entered the Straits to engage forts, and all three vessels were hit. The chief events on the 3rd were the bombardment of Bulair forts and the wrecking of Kavack bridge by French battleships; the shelling of guns, troops, and an observation station on the Peninsula and in the Gulf of Adramyti by the Dublin and Sapphire, and a renewed attack by four British battleships on Fort Dardanus.

The attack on the Narrows.

The weather cleared on March 4th, and bombarding and sweeping operations continued steadily. Next day, an attack upon the Narrows defences was begun by indirect fire from the Queen Elizabeth, Inflexible, and Prince George, in the Gulf of Saros, assisted by four battleships stationed at the entrance to the Straits. The Admiralty declared the results to be satisfactory. March 5th also saw the opening of an attack on the Smyrna defences by a squadron under Vice-Admiral Sir Richard Peirse, with his flag in the Euryalus. On the 6th the Queen Elizabeth, Agamemnon, and Ocean continued the indirect fire at 21,000 yards across the peninsula. The Queen Elizabeth was hit by three shells from field guns on this day, without causing any damage. On March 7th, the weather continuing fine and calm, direct fire at 12,000 to 14,000 yards was opened on the Narrows forts. Two were silenced, and a third, which had exploded on the 5th after the indirect bombardment, remained out of action. The new feature on the 8th, when bad weather again prevailed, was the entry into the Straits for the first time of the Queen Elizabeth. On the night of March 10th mine-sweepers again did good work under fire, and the subsidiary operations against Bulair and other points were continued. No other important occurrences were reported officially until the great battle on March 18th. On two occasions during this first month landings had been made. On February 26th demolishing parties from the Vengeance and Irresistible went ashore at Kum Kaleh and Sedd el Bahr. The enemy encountered in Kum Kaleh were driven out over Mendere Bridge, which was partially destroyed, and the forts, guns near the Tomb of Achilles, and Nordenfelts covering the entrance were demolished. The casualties were one killed and three wounded.

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On March 4th demolition parties were covered by detachments of the Marine Brigade, Royal Naval Division, to clear ground at the entrance. Skirmishing ensued on both banks, and the enemy were found to be holding the villages in force. The casualties were twenty-two killed, twenty-two wounded, and three missing.

Turkish defences.

Turning to the character of the defences, the Admiralty stated that the forts were armed as follows :—

A (Cape Helles), two 9·2-in. guns.
B (Sedd el Bahr), six 10·2-in. guns.
C (Orkhanieh), two 9·2-in. guns.
D (Kum Kalessi), four 10·2-in., and two 5·9-in. guns.
E (Dardanus), four 5·9-in. guns.
F
H
J (Rumilieh Medjidieh), two 11-in., four 9·4-in., five 3·4-in. guns.
L (Hamidieh II.), two 14-in. guns.
T (Namazieh), one 11-in., one 10·2-in., eleven 9·4-in., three 8·2-in., three 5·9-in. guns.
U (Hamidieh I.), two 14-in., seven 9·4-in. guns.
V (Hamidieh III.), two 14-in., one 9·4-in., one 8·2-in., four 5·9-in. guns.

Mr. Churchill stated, in the speech following his resignation from the Cabinet in November, 1915, that "across the prospect of the operations a shadow began to pass at the end of the first week in March. The difficulties of sweeping up the minefields increased, and although great success was obtained by the ships in silencing the forts, they were not able at that stage to inflict decisive and permanent damage." Admiral Carden was authorised to undertake more vigorous measures, to press hard for a decision, and not to be deterred by the inevitable loss. To that time the policy had been that described by Admiral Carden in reply to the First Lord's question as to whether he considered the forcing of the Dardanelles by ships alone a practicable operation—"that the Dardanelles could not be rushed, but could be reduced by a regular and sustained naval bombardment." In this opinion Admiral Sir Henry Jackson concurred. Admiral of the Fleet Sir Arthur Wilson, added Mr. Churchill in his statement to the House of Commons, was in favour of attacking the outer forts, but he felt that future progress must depend on the amount of Turkish resistance. Faced with the inability of the Fleet to inflict decisive damage against the forts, or to silence the mobile batteries on shore which, were increasingly annoying, and in consequence of which mine-sweeping became extremely hazardous, Mr. Churchill was nerved to greater determination, and the process of gradual reduction gave place to one of a *tour de force*. The date of this grand attack on the Narrows was fixed for March 17th, weather permitting, but on the 16th Admiral Carden was stricken down by illness, and was invalided. In his place, Rear-Admiral J. M. De Robeck, formerly second-in-command, was appointed in charge, with the acting rank of Vice-Admiral. The

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enterprise was accordingly taken in hand on March 18th, or a month after the opening of the first attack on the outer forts.

Events of the bombardment.

At 11.25 a.m., the Queen Elizabeth, Inflexible, Agamemnon and Lord Nelson bombarded forts J, L, T, U, and V, at 14,000 yards, while the Triumph and Prince George fired at batteries F, E, and H. At 12.22 the French battleships Suffren, Gaulois, Charlemagne and Bouvet engaged the forts at 9000 yards, being led into action by Rear-Admiral Guépratte with the greatest gallantry. The ten ships, all under heavy fire, silenced forts J, U, F and E, and by 1.25 p.m. all the forts had ceased firing. The Vengeance, Irresistible, Albion, Ocean, Swiftsure and Majestic then relieved the six old battleships inside the Straits. These relief ships were under Capt. Hayes-Sadler, and advanced almost to Kephez Point. It proved that the forts at Chanak and Kilid Bahr had not been knocked out, their gunners having withdrawn to cover. Before being relieved the Gaulois was badly hit forward, and had to leave the Straits in a sinking condition, being run ashore on Rabbit Island. As the Bouvet was passing out she was struck in a vital position, either by a mine or a shell, and, her magazine exploding, she sank in ninety-five seconds with nearly all on board. At 1.15 p.m. the Inflexible was hit in her fore-top by a shell which killed or wounded every one in it except one man, and at 4 p.m. she struck a mine forward, and left the Straits in danger of sinking. A quarter of an hour later the Irresistible struck a mine and listed to starboard, but the destroyers of the Fleet gallantly rescued her crew under a hot fire. She remained afloat until 5.50 p.m. The Ocean was ordered to her assistance, and she struck a mine at 6.5 p.m. and sank, her crew being saved. At 3.10 p.m. mine-sweepers closed in and began to sweep a channel to Kephez Point. Both bombardment and sweeping terminated when darkness fell. The total British casualties during the day were about 100.

In the foregoing summary much use has been made of facts supplied by the official "Eye-Witness," Mr. E. Ashmead-Bartlett, in a letter to *The Times*, on November 24, 1915. The facts have been collated with the official *communiqués* issued at the time and with Mr. Churchill's speech. Commenting upon the purpose of the battle on March 18th, Mr. Ashmead-Bartlett says: "Mr. Churchill evidently thought, and the public have been led to believe, too, that the fight on the 18th was a deliberate attempt to force a passage through the Narrows and to reach Constantinople. In reality it was nothing of the sort, and was never intended to be by the officers in command on the spot. This fight . . . was merely an attempt on the part of the Fleet to clear the triple minefield below the Narrows. The Fleet was prepared, of course, to take advantage

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of any favourable condition that might possibly arise for a dash through, but it was hardly within the scheme of operation that this dash should take place on the same day. The plan of campaign was for the Fleet to silence the forts at the Narrows, those at Kephez Point and Fort Dardanus, to enable destroyers and trawlers to sweep the minefield, which they had hitherto been unable to do." The Admiralty *communiqué* on March 19th announced that the operations were continuing, "ample naval and military forces being available on the spot," and next day it was stated that "the power of the Fleet to dominate the fortresses by superiority of fire seems to be established."

On the facts of the fight on March 18th being reported to the Admiralty, Mr. Churchill endeavoured to persuade the First Sea Lord to order a resumption of the naval attack; but his consent was not forthcoming, and although mine-sweeping and certain bombarding operations continued, the next event of importance in the campaign was the landing of the Army on April 25th. The delay which took place in the disembarkation of the troops is partly shown by the General Officer Commanding, Sir Ian Hamilton, to be due to the necessity of redistributing the troops in the transports to suit the order of their disembarkation. Owing to lack of facilities for this at Mudros, the transports had to return to Egypt. Sir Ian Hamilton had arrived at Tenedos on March 17th, and was a witness of the attack of the ships on the forts on the following day, after which he cabled his deduction that the co-operation of the whole of the force under his command would be required to enable the Fleet effectively to force the Dardanelles. Mr. Churchill, in his November speech, said that the concensus of opinion of the naval and military authorities on the spot favoured a joint naval and military attack. The need for military co-operation at some time was manifest, for even if the Fleet forced the Straits, it could not occupy Constantinople; but the interval between the sea and land attacks took away the all-important element of surprise, enabled the Turks to consolidate their defences, and robbed the Allies of the chance of seizing the forts from the rear by a *coup de main*. The facts concerning the stupendous undertaking on April 25th–26th, when the Army was landed in the Peninsula, are set forth in the Admiral's despatch.*

The Navy and the disembarkation.

Having got the troops ashore, the Navy's work did not diminish —it had only begun. The new phase taxed the skill and endurance of the seamen to a degree. The Army had to be reinforced, munitioned, fed and watered, and the wounded to be brought off from beaches swept by the enemy's fire. Support had also to be given by the heavy guns of the warships, which proved invaluable in keeping

* *See* Part IV.

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down the artillery fire of the Turks. In the course of the long months of bombardment of land fortifications which ensued, the officers and men of the Fleet had an experience unique in the history of war, and gained knowledge which was invaluable in solving the intricate and difficult technical problems presented. The destroyers had a hard time in meeting the many and dangerous calls on them. The mine-sweepers also rendered indispensable service. When another phase of the enterprise came about, owing to the advent of hostile submarines, the men in these small craft of the Allied Fleet had an even greater task to perform. The debt due to them for their heroism and dauntless courage is indicated by the writings of Mr. Ashmead-Bartlett, whose articles have vividly portrayed the marvellous achievements of our seamen and soldiers in the Dardanelles undertaking. As he said in a despatch published in the Press on October 26th: "I do not suppose any race except the English would have attempted this expedition to the Dardanelles, and I am quite certain that no other nation would have persisted in it after the many obstacles and set-backs we have encountered from the start."

German sub-marines arrive.

One duty carried out by the Navy was to guard the flanks of the Army. This was shared by the British and French Fleets. On the dark night of May 12th, the Goliath, Captain T. L. Shelford, protecting the French flank just inside the Straits, was torpedoed three times in an attack by the Turkish destroyer Muavenet-i-Millet, Lieut.-Commander Firle, and sank in three minutes, with the loss of about 500 of her crew, including the captain. In the destroyer, commanded by a German officer, were several German seamen. After this mishap, the heavy ships were not allowed to be stationed in the Straits at night. More serious by far than the destroyer menace, however, was that of the submarine, which was to change the entire character of the naval operations. Lieut.-Commander Otto Hersing, reputed to be the first submarine commander to arrive off the Straits, was stated to have left Wilhelmshaven on April 25th, and to have reached his destination exactly a month later. Anyway, on May 25th the Triumph, Captain M. S. Fitzmaurice, supporting the Anzac positions, was torpedoed by Hersing, and capsized in nine minutes. Two days later the Majestic, Captain H. F. G. Talbot, and flying at the time the flag of Rear-Admiral Stuart Nicholson, shared the same fate off Helles. On July 4th the French auxiliary ship Carthage was torpedoed and sunk off Helles, but fortunately this proved to be the last loss of the kind in the immediate vicinity of the Dardanelles. The precautionary and defensive measures taken obliged the submarines to go further afield. On August 14th the British transport Royal Edward was torpedoed and sunk in the

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Ægean, about 1000 lives being lost. On September 8th, off Rhodes, the French auxiliary cruiser Indian was sunk. On September 2nd and 19th, the transports Southland, with troops for Anzac, and Ramazan, with Indian troops, were attacked by submarines in the Ægean; but while the former reached Mudros under her own steam, the latter was sunk. On October 27th the transport Marquette was torpedoed and sunk in the Ægean; and on November 3rd there were two more attacks on the transports Mercian and Woodfield, of which the former was not sunk, although a hundred of her crew were killed, drowned, or wounded; while the Woodfield was sunk, but only twenty were killed and wounded, the survivors getting ashore in North Africa. The effect at the Straits of the submarines' presence was the disappearance of the big ships to other places or protected harbours, and after a few weeks their places were taken by the arrival of the new monitor fleet which Lord Fisher had created for another purpose altogether, but which proved a most valuable force to fall back upon. Besides these monitors, some with 14-in., some 9·2-in. and 6-in., and others with only 6-in. guns, there were also sent to the Mediterranean, in July, the cruisers of the Edgar type, which had been constructionally refitted to render them immune, or practically so, from under-water attack, and which came to be known in the Fleet as "blister-ships." Just below the surface the sides were made to bulge out some 10 ft. and then curve under, and a torpedo striking this bulge would probably not damage the hull, but would explode amidst a variety of substances. Monitors and "blisters" both proved their value in the new landings at Sulva Bay on August 6 and 7, 1915. On November 15th, too, when the troops captured 280 yards of Turkish trenches in the neighbourhood of the Krithia Nullah, fire was maintained by two 14-in. monitors and the cruiser Edgar until the new position was consolidated in the evening. In revealing this little success, the authorities showed what was presumably a typical operation of the Navy and Army combined.

Progress of the operations.

Among other incidents which marked the concluding months of the Dardanelles fighting, it may suffice to mention three, which all illustrate phases of the naval work. On August 12th Flight-Commander C. H. K. Edmonds, R.N., bombed a transport from his aeroplane and destroyed the ship in the Straits. This fine achievement was one of many accomplished by the Royal Naval Air Service, which was represented right throughout the Dardanelles campaign, the aeroplane-carrier Ark Royal being present at the first bombardment in February. On October 28th the auxiliary fleet-sweeper Hythe, Lieut.-Commander A. H. Bird, R.N.R., was sunk in

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collision with another ship off the Peninsula, ten seamen and 145 soldiers being lost. Since May 22nd, owing to the submarines, all men, stores, guns, horses, etc., had to be brought from Mudros, a distance of forty miles, in these fleet-sweepers and other small and shallow craft less vulnerable to submarine attack. On November 10th, the destroyer Louis, Lieut.-Commander H. D. A. Hall, R.N., was stranded and totally wrecked at Suvla Bay, her crew being saved. That this was the only destroyer to come to grief, so far as was known, constituted a testimony to the efficient handling of these craft in the difficult and hazardous conditions, due both to the weather and the action of the enemy, which prevailed. It was understood that a division of four boats of the L type were sent to the Straits to reinforce the Beagle and River classes, which had put in such splendid work there. The withdrawal of all the troops at Suvla and Anzac was officially announced on December 20th, and those at Helles on January 9th. The Prime Minister announced that the former, in which there was not a single casualty, reflected the utmost credit on the Admiral and his staff and all ranks of the Navy, and General Sir Charles Monro likewise stated that the Helles evacuation, with only one man wounded, was due largely to the invaluable assistance rendered in an operation of the highest difficulty by Admiral de Robeck and the Royal Navy.

Gallant deeds.

The Dardanelles Expedition brought opportunities for distinction and honour to many branches of the fighting Services, but to none more than to the Allied submarine flotilla, and full advantage was taken of the chances offered. The exploit of Lieutenant Norman D. Holbrook, V.C., of B 11, in diving under the minefields in the Straits and torpedoing the Messoudieh, was referred to last year. In the following month the loss of the French boat Saphir indicated that it was not for want of trying that our Allies had not achieved a similar success. But when the landing of the Army in the Peninsula was imminent, it was realised what a potent influence could be exerted on the Turkish resistance if submarines could penetrate into the Sea of Marmora and interfere with supplies. The first boat to attempt this appears to have been E 15, Lieut.-Commander T. S. Brodie, although the Admiralty said at the time, with a view, no doubt, to mislead the enemy, that she was making a difficult reconnaissance of the Kephez minefield. Unfortunately the boat stranded at Kephez Point on April 17th, and three of her crew, including the gallant commander, were killed by Turkish fire, the others being rescued. To prevent the enemy refloating the submarine a picket-boat expedition from the Triumph and Majestic under Lieut.-Commander Eric G. Robinson—

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who had already won the V.C. for his courage, during the landing of bluejackets, for demolition work on February 26th—was made on the night of April 18th. The boat was rendered useless, although the attack had to be delivered within a few hundred yards of Fort Dardanus. The hot fire to which the picket-boats were exposed sunk that of the Majestic, under Lieutenant Claud Godwin, but its occupants were picked up by the other boat. On April 30th a second toll was taken of the British flotilla, before it gained its laurels, by the sinking of AE 2, Lieut.-Commander H. H. G. D. Stoker, fortunately without the loss of the crew. Writing from captivity to Sir William Creswell, in Australia, the Commander said that AE 2's crew were proud of the fact that an Australian warship was the first British vessel to pass through the Dardanelles, and hoped that Australia would consider it an honour worth winning. Possibly this was written in ignorance of the fact that E 14, Lieut.-Commander E. C. Boyle, had succeeded in getting into the Sea of Marmora on April 17th, on which day she sunk a Turkish gunboat of the Berk-i-Satvet type.

Submarine operations.

The submarine remained over a fortnight, and sank about four other enemy ships. Lieut.-Commander Boyle received the V.C. for his gallantry. Next, E 11, Lieut.-Commander M. E. Nasmith, repeated the achievement, and added to it by entering the harbour of Constantinople itself and torpedoing a transport alongside the arsenal. Her commander also was awarded the V.C. for his cruise, which lasted several days. During the next three months, although the Germans and Turks placed various obstructions in their path, the submarines kept up their successes. On July 26th the French boat Mariotte was unfortunately lost and her crew taken prisoners by the Turks. On August 2nd the Admiralty referred to another attack made upon lighters at Constantinople, and to the torpedoing of a large steamer of 3000 tons off Mudania Pier, and a small steamer close to Karabogha Bay, but the identity of the submarine was not revealed. Equally remarkable was the official statement at this time that the Turkish powder mills at Zeitunlik had been bombarded by a submarine, and that the railway west of Kara Burnu was also shelled and blocked, and ammunition trucks blown up. The Galata quay and bridge was also reported damaged. On August 9th the Turks admitted the loss of their battleship Kheyr-ed-Din Barbarossa, torpedoed by a British submarine, and there were other victims. On September 16th the loss of E 7, Lieut.-Commander A. D. Cochrane, was announced by the Admiralty; her crew were taken prisoners. On October 8th Lieutenant Guy D'Oyly-Hughes, second-in-command of E 11, who had also already won the D.S.C. for his work with Lieut.-Commander Nasmith in May and June, was awarded the D.S.O. for

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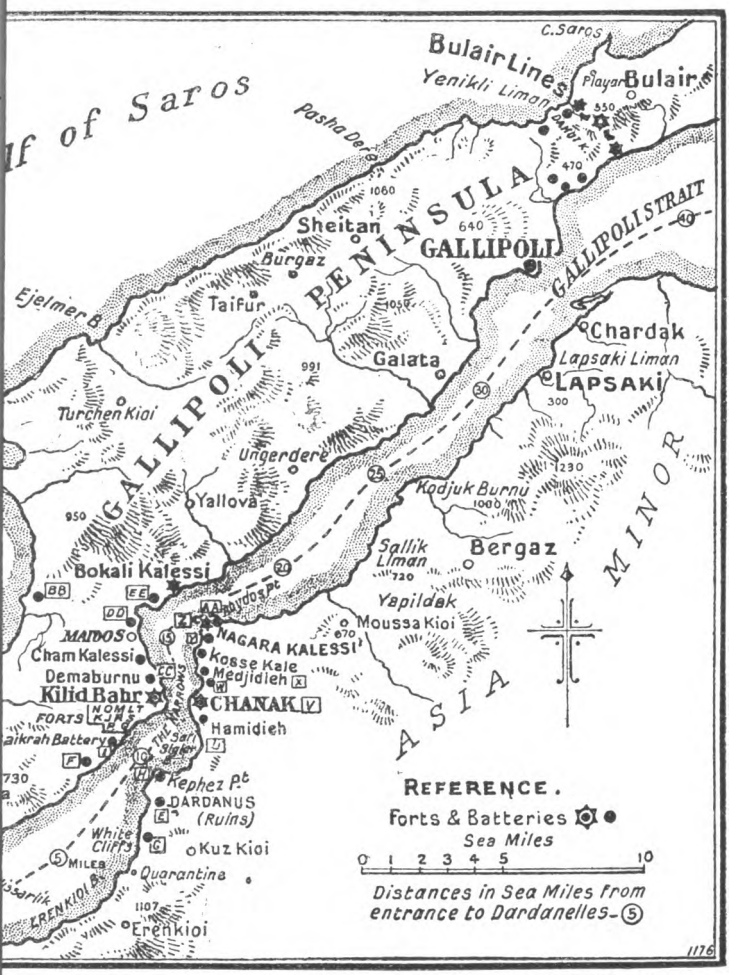

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gallantry in swimming ashore from his submarine and mining a Turkish railway. In November three Allied losses became known, emphasising the dangerous character of the submarine raids. The French flotilla lost the Joule and Turquoise, of which the latter was captured by the Turks and renamed the Ahmed; and the British E 20, Lieut.-Commander C. H. Warren, from which three officers and six men were saved and made prisoners. The last Admiralty reference to submarine operations in the Sea of Marmora was apparently on December 6th, when it was announced that a boat had fired into and damaged a train on the Ismid Railway, torpedoed and sunk the Turkish destroyer Yar Hissar, and sunk a supply steamer of 3000 tons off Panderma by gun-fire, as well as destroying four sailing-vessels carrying supplies. In his speech in Parliament on November 2nd, the Prime Minister referred with pride to the fact that up to October 26th British submarines had in the Sea of Marmora sunk or damaged two battleships, five gunboats, one torpedo-boat, eight transports, and no less than 197 supply ships of all kinds, whether steamers or sailing-vessels.

Black Sea.

When Turkey entered the war, the command of the waters of the Black Sea was for a time in dispute, but the damages inflicted on the Goeben by her action with the Russian Fleet on November 18, 1914, and by striking mines in the Bosphorus, rendered her a much less serious menace than she had been formerly, and the virtual command passed into the hands of our Allies. They retained it in the face of several attacks of no great importance by the Turco-German cruisers and small craft, and the completion during 1915 of the Dreadnought battleships under construction at Nikolaieff strengthened their superiority. Speaking on the anniversary of the declaration of war between Germany and Russia, the Russian Minister of Marine said:—"In the Black Sea, our Fleet, there, too, not so strong as the united Turco-German Navy, has also paralysed its adversary and inflicted severe losses on him, and, without sustaining loss itself, is step by step developing the problem so dear to the Russian heart. . . The workmen are doing wonders in productive energy, so that the Baltic Fleet was strengthened towards the end of last year by new fighting units, and so was the Black Sea Fleet."

Reaction of sea and land operations.

It was in part due to the request of the Russians that action should be taken against Turkey by the British to relieve the pressure upon the Russian forces in the Caucasus, which led to the Dardanelles expedition being undertaken, as both Mr. Churchill and Sir George Buchanan showed. On April 15, 1915, the Russian Fleet attacked

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the forts at the Bosphorus end of the Straits, but this was two months after the opening of the bombardment of Kum Kaleh and Sedd el Bahr; and Sir Ian Hamilton, in his despatches, shows that early in May "Russia had given up the idea of co-operating (in the Dardanelles undertaking) from the coast of the Black Sea." But although our Russian Allies were unable to take advantage of their command in the Black Sea to launch an expedition at this time, on a later occasion their assistance proved timely and valuable. The sea passage enabled them to develop an offensive in Persia during December, 1915, and subsequently, which, by detaining a number of Turco-German troops, lightened the pressure upon the beleaguered Anglo-Indian forces at Kut-el-Amara.

As regards incidents of the sea war, the cruiser Medjidieh was sunk by a mine near Odessa on April 3, 1915, and refloated by the Russians on June 8th. There were skirmishes at frequent intervals between the Breslau and Hamidieh, and torpedo craft operating with them, and the Russian ships, and although none of these were decisive, so far as was reported, in none of them was any Russian vessel sunk or seriously damaged. About July the appearance of hostile submarines in the Black Sea was reported, and when three months later Bulgaria entered the war some U boats were stated to have been supplied by Germany for the defence of Varna, but none of the submarines accomplished anything until on March 9, 1916, one of them sank the Russian torpedo boat Lieutenant Pustchin. This was understood to be the first loss sustained by the flotilla, which had done effective work in stopping the supply of coal and other commodities to Constantinople. On August 2, 1915, the Russian Admiralty announced that, in a raid by the flotilla along the whole of the Anatolian coast, over 450 sailing vessels were destroyed, their crews being sent prisoners to Sebastopol. In the following month the Turks tried an alternative plan of shipping their war material, petrol, etc., in four large transports, with a convoy consisting of the Hamidieh and two torpedo boats. This also failed. Near Zunguldak, on September 5th, Russian destroyers, under Captain Prince Troubetzkoi, made an attack, and after a two hours' engagement the Turkish warships fled to the Bosphorous with the Russians in pursuit. The transports were all destroyed. On October 27th, the Russian Fleet, in which Rear-Admiral R. F. Phillimore was present on board the flag-ship, shelled the port of Varna, and destroyed the railway station, custom house, wireless installation, and other military points, without damage to any of the attacking warships.

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THE MEDITERRANEAN.

A salient feature of the naval movements during 1915 was the very considerable augmentation of force in the Mediterranean. At the beginning of the year there was a blockading squadron off the Dardanelles, and certain vessels co-operating with the French in the Adriatic, with no doubt a few ships patrolling the important trade routes which traverse this sea. By the autumn, the blockading squadron had grown into a big fleet, requiring for its support and maintenance a number of other vessels, naval and mercantile; there was a large army ashore in the Peninsula whose communications lay entirely oversea; the vulnerability of the latter had attracted enemy submarines, whose suppression called for the employment of still more ships; a fresh expeditionary force had been landed at Salonika, again relying upon the Navy for its supplies of food, ammunition, and everything necessary for its well-being; and there were increased calls upon the warships and transports in connection with the military forces in Egypt. Events in the Mediterranean during the year at least testified to the vastness of our maritime resources.

Events on the Danube.

In April, events in the Danube revealed the presence of a British naval contingent there, under Rear-Admiral E. C. T. Troubridge. On the night of April 22nd, a surprise attack on the Austrian river gunboats north of Semlin resulted in one of them being torpedoed, under a heavy fire, by a picket boat under Lieut.-Commander C. L. Kerr, R.N., who was awarded the D.S.O. for his exploit. These river operations had a wholesome effect upon the Austrian monitors in the Danube. Rear-Admiral Troubridge also had with him a force of seamen and marines, with heavy naval guns, which were used to good purpose in preventing the enemy bombarding Belgrade and harassing the Serbian troops. Another part of the work was the mining of the Serbian rivers, for which Major B. N. Elliot, R.M.L.I., was awarded the D.S.O. In the *London Gazette* on January 21, 1916, four officers, four warrant officers, and six petty officers and men were noted as having been mentioned for their services with the British naval Mission in Serbia.

Salonika.

The attitude of Bulgaria became outwardly unfriendly to the Allies during September, 1915, and on October 1st a grave statement on the matter was issued by Sir Edward Grey. On or about October 5th French and British transports began to arrive at Salonika, with troops, which were disembarked with a view to proceeding to the assistance of the Serbian Army. Great Britain declared war upon Bulgaria as from 10 p.m. on October 15th, and from 6 a.m. on October 16th a blockade of the Bulgarian coast in the Ægean sea

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was declared by the Vice-Admiral Commanding the Eastern Mediterranean Squadron of the Allied Fleets. On October 21st a bombardment of the Bulgarian coast was carried out by an Allied squadron, composed of British, French, and Russian ships. The British vessels comprised a "blister ship," three monitors, a seaplane ship, four destroyers, and six trawlers. A number of military positions, including the large barracks to the west of Dedeagatch, were shelled, and serious damage was inflicted on the harbour works, railway station, and shipping at Dedeagatch. The places attacked covered a distance of 38 miles, from Dedeagatch to Porto Lagos. The Russian cruiser Askold was stationed off the latter place.

Enemy submarines in the Mediterranean.

On November 3rd, the French Ministry of Marine reported that enemy submarines, coming from the Atlantic, had passed through the Straits of Gibraltar, probably on the night of November 2nd. This was the beginning of a fresh submarine effort in the Mediterranean. About six weeks before, or towards the end of September, the U boats had begun to attack merchant ships in the Mediterranean. Their successes, however, were much more numerous and dramatic after the reinforcements of November 2nd. After several ships had been destroyed off Algeria, the Italian liner Ancona was fired upon by about 100 shells, and then torpedoed, sinking in about seven minutes, with the loss of 300 lives. There were twenty-five Americans in this number, and the United States demanded that Austria-Hungary should denounce the occurrence as illegal and indefensible, that the submarine commander should be punished, and that reparation should be made by an indemnity. The first request was refused, but the second and third were complied with, although the Austrian Government disclaimed responsibility. In punishing the commander, they declared that he apparently neglected to take sufficiently into consideration the panic among the passengers, which rendered disembarkation more difficult, and "the spirit of the regulations that Austro-Hungarian naval officers should refuse assistance to no one in distress, even if they are enemies." This was a distinct change from German methods. Two of the submarines in the enemy group made for the Bay of Sollum, on the frontier of Egypt and Cyrenaica, and there attacked the armed boarding steamer Tara, Captain R. Gwatkin-Williams, which was sunk, although the greater part of the crew got ashore, where they fell into the hands of the local tribesmen. The crew of the Tara were released on March 17th, when a naval armoured car section, under the Duke of Westminster, routed a force of Senussi at Bir Hakin, 70 miles east of Sollum. On December 30th, the P. and O. steamer Persia was torpedoed and sunk off Crete with the loss of 200 lives.

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ADRIATIC.

Submarines at work.

With the Italian declaration of war upon Austria, which took effect from midnight on Sunday, May 23, 1915, there was an increase of activity in the Adriatic theatre, which was both sudden and widespread. Previously, the most startling event had been the torpedoing on April 27th of the French cruiser Léon Gambetta, which was sunk at the entrance to the Otranto Straits, with the loss of about 600 officers and men. The attacking boat was U 5, Lieutenant von Trapp, and this was the first success attained by the Austrian flotilla. When Italy came into the war, the Austro-Hungarian boats, in common with other portions of the Fleet, gave signs of great energy. No. 4, commanded by Lieutenant Singule, reported having sunk off San Giovanni di Medua on June 9, 1915, a British cruiser of the Liverpool class, which was accompanied by six destroyers. This report was also exaggerated, since the Admiralty announced that the vessel presumably referred to was safe in harbour, and not seriously damaged. She had been taking part with Italian destroyers in an operation against the coast of the Drin Gulf, which was successfully accomplished, and the vessels all returned to their base at a speed of 17 knots. On June 17th there was revealed a strange and unique combat—a submarine duel between the Italian boat Medusa and an Austrian boat. The Medusa, it was officially announced by Italy, was torpedoed and sunk, one officer and four men being made prisoners. It was afterwards reported that divers examining the wreck found close to the Medusa the hull of an Austrian submarine, and it was concluded that this was the assailant of the Italian boat, and that both vessels in the duel had thus been sunk. This theory, however, lacked confirmation. Meanwhile, the Austrian boats scored two important successes in July, 1915. On the 7th, in the Upper Adriatic, the Italian cruiser Amalfi was torpedoed, and sunk in about eight minutes, seventy of her crew being lost. On the 18th, off Cattaro, the Giuseppe Garibaldi, forming one of a division of four older Italian cruisers, which had bombarded the railway near that port, was torpedoed, and foundered within a quarter of an hour, nearly all her crew being rescued. The Austrian flotilla sustained several losses in the course of its activity. In August one-half of the original flotilla of twelve boats was stated to have been lost. In addition to the supposed assailant of the Medusa, U 11 was considerably damaged by two bombs from an aeroplane flown by Sub-Lieutenant Rouillet, a French officer, on July 1st. On August 11th a second submarine duel occurred, when an Italian boat torpedoed and sank in the Upper Adriatic the Austrian U 12, Lieutenant

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Zerch. On August 13th, U 3 was rammed by an Italian auxiliary cruiser, and afterwards sunk by the guns of the French destroyer Bisson, which took the second-in-command and eleven men of the submarine prisoners. The attempt of the French boat Curie to enter Pola harbour was referred to last year. In August, 1915, another French submarine, the Papin, distinguished herself, under Lieut. Cochin, for a daring reconnaissance of an enemy minefield. The Lieutenant destroyed several mines floating on the surface, and proceeded to cut the cables of a hundred others and destroyed them. On September 9th the Papin, still attached to the Italian Fleet, again came into prominence by attacking a group of Austrian torpedo boats in the Middle Adriatic, near Cape Planka. One boat was reported to have been severely damaged.

At the moment when the intervention of Italy in the war relieved his fleet of its task as the immediate guard over the Adriatic, Admiral Boué de Lapeyrère issued an Order of the Day commending his subordinates for the tireless zeal, energy, and abnegation which everyone of them had displayed in supporting him in "the most arduous and thankless tasks which naval forces ever had to accomplish." The ten months' co-operation had been sustained by the ships of all classes, said the Commander-in-Chief, with a really remarkable endurance. In October Admiral de Lapeyrère resigned on account of ill-health, and was succeeded by Vice-Admiral Dartige du Fournet, who had been in command off the Syrian coast.

Adriatic coast raids.

Immediately on the declaration of war Austrian naval forces raided the Italian coast at some eight or nine places, from Venice to Barletta. The vessels employed varied from battleships to aeroplanes. No military advantage was gained, except the sinking of the Italian destroyer Turbine, but at least one Austrian cruiser was damaged. The Italians made counter raids, in one of which the destroyer Zeffiro appeared off Porto Buso, Gulf of Trieste, and shelled the shipping in harbour, sank several motor-boats, and destroyed the railway station and barracks. Cross-raiding, both by warships and aircraft, continued intermittently for a little time, but without any decisive results being reported. In the advance of the Italian Army, the Fleet played an important part, and assisted especially at the capture of Monfalcone, on June 10th. It also made periodical cruises through the Adriatic, but the enemy made no appearance. On July 26th destroyers and auxiliary craft of the Fleet captured and occupied the island of Pelagosa, which was reported to be in use as a submarine base by the enemy. Lagosta was raided at this time, and other islands bombarded for the destruction of signal stations or other military objects included Lissa. The Fleet, under the Duke of the Abruzzi,

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also maintained a blockade of the Albanian coast from the Montenegrin border in the north to Aspriruga in the south.

Italian landing in Albania.

Early in December the Italians undertook the delicate and difficult task of transporting an army to Albania, and these operations, in addition to the withdrawal of the Serbian Army from that coast, were highly successful. It was officially announced from Rome, on February 24, 1916, that the Italian Fleet and Allied ships attached to it had moved between the western and eastern shores of the lower Adriatic 260,000 men and a large number of animals, 250 steamers being required for the work. There were also transported materials amounting to 300,000 cwt., in 100 steamers, most of which were of small tonnage, in order that they might be able to put in on the opposite shore. Although the enemy tried to impede this extensive undertaking by continual air activity, by mining certain areas, by attempted destroyer attacks, supported by scouts or cruisers, he was entirely unsuccessful. Nineteen submarine attacks were made also during the operation. The net result of the Austrian efforts was the destruction of three small steamers, two by striking mines, while the third was torpedoed after discharging her cargo. "Not a single Serbian soldier," Italy was able to declare, "was lost at sea."

Mesopotamia Expedition.

The Anglo-Indian force which, as stated last year, landed and captured Fao, at the head of the Persian Gulf, on November 8, 1914, covered by the British sloops Espiègle and Odin, and also advanced to and captured Basra on November 21st, has seen a great deal of arduous and sanguinary fighting during the past year. Basra, just below the junction of the Tigris and Euphrates, has remained the headquarters of the force. On December 9th an advance which had been made on Qurnah resulted in the capture of that city. Captain Wilfrid Nunn, of the Espiègle, was awarded the D.S.O. for the great coolness and skill with which he handled his ship under fire in the difficult conditions of unsurveyed waters. The other British warships engaged were the Odin, Commander C. R. Wason, the Lawrence, Commander R. N. Suter, and the armed launches Lewis Pelly, Lieut. J. F. B. Carslake, Miner, Lieut. C. H. Heath-Caldwell, and Shaitan, Lieut.-Commander F. G. Elkes, R.N.R. (killed). Captain Nunn, in command of a gunboat flotilla, subsequently accompanied General Townshend in the advance up the Tigris river. For his services during the attack on the Turkish positions north of Qurnah, and the advance on and occupation of Amara, Commander Colin Mackenzie was specially promoted to

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Captain. Amara was captured on June 3, 1915. On the Euphrates river also the military operations were supported by a flotilla of gunboats and river launches. As a result of actions in April, 1915, the Turkish forces which had threatened Basra from the west hastily retired on Sukh-es-Sheyukh and Nasiriyeh, where they entrenched themselves. To dislodge them a force was despatched by water from Qurnah, via the Euphrates and the Hamar Lake. Mines and obstructions having been removed, a determined resistance on the part of the Turks was overcome, and the Anglo-Indian troops, who, an official *communiqué* stated, were "skilfully supported by extemporised gunboats and launches," forced their way into the Euphrates.

On the Tigris, the river and land fighting was very successful until November, 1915. The strong Turkish position of Kut-el-Amara was captured on September 29th, and the British at once pushed on. They received a check at Ctesiphon, only 18 miles from Baghdad, on November 22nd–25th, and it became necessary, owing to the want of water and the reinforcement of the enemy, to retire first to the river and then to Kut-el-Amara. Two gunboats were abandoned during the retreat. A relief force, accompanied by a naval flotilla, was despatched up the river.

Commerce Raiding and the German Colonies.

The well-planned German attack on the commerce of the Allies, by means of raiders in the outer oceans, collapsed, after the destruction by Sir Doveton Sturdee of its necessary supporting squadron. The total "catch" of the raiders was shown by the Admiralty official table of vessels lost by hostile action to have been fifty-six British merchantmen, or about half-a-dozen a month. It was significant that more than half the raiders never captured a single British ship. In an analysis of the losses, which appeared in *The Times*, it was shown that the Emden, which undoubtedly did far more to disturb trade than any other of the German cruisers, sank seventeen vessels, representing £2,211,000. She also detained three others, but sent them into port with captured crews. The Karlsruhe sank seventeen steamers, worth £1,662,000; the Kronprinz Wilhelm and Prinz Eitel Friedrich accounted for thirteen and eleven respectively, valued at £1,165,000 and £885,000; and the remainder got one, five, and three vessels respectively, worth about £750,000. The tonnage on the register of the United Kingdom was 20,000,000, and estimating this at £10 per ton, the total value of British tonnage was £200,000,000 sterling. Adding this sum to the total

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value of imports and exports through the United Kingdom, the value of the property sunk by the German cruisers represented merely 7 per cent. The one action which took place during the past year arising out of the raiding operations was the destruction of the Königsberg in the Rufigi River, in July, 1915, by two monitors sent from England for the purpose by Lord Fisher, just before he left the Admiralty. These useful vessels, by means of aeroplane assistance, and supported by the ships on the Cape Station, effectively finished off the German cruiser.

The Möwe's raid.

Although various attempts, some successful, were made by German ships interned in neutral ports to escape, presumably for the purpose of renewing the attacks on the trade routes, no more raids took place until January, when a vessel called the Möwe, under Captain the Burgrave Count von und zu Dohna-Schlodien, made several captures in the Atlantic. From January 10th to 16th she held up eight ships, seven of which were sunk and their crews sent to Norfolk, U.S.A., in the Elder Dempster liner Appam, on board of which a prize crew was placed under Lieutenant Berg. On February 22nd the arrival at Santa Cruz, Teneriffe, of the British steamer Westburn revealed the fact that this vessel and four more merchant ships had been captured by the Möwe, the four others being sunk and their crews placed on the Westburn. On their being landed this vessel was taken out of harbour and scuttled by her prize crew. The French steamer Maroni and the Belgian steamer Luxemburg were also sunk. The raider has thus held up and destroyed fourteen ships, and sent a fifteenth into a neutral port. In value these prizes approximated to those destroyed by the Emden, so that the exploits of this surprise raider had a serious aspect. She was stated by the German Navy Office to have returned to "a certain home port" on March 4, 1916, with four British officers, twenty-nine British marines and sailors, and 166 men, crews of steamers sunk, and also £50,000 in gold bars. "At several points of the enemy coast," said the German statement, "the Möwe also laid out mines, to which, among others, the battleship King Edward VII. fell a victim." Although the identity of the so-called Möwe was more or less wrapped in mystery, she was understood to be the fruit trader Ponga, converted into an auxiliary cruiser. Her guns were masked, and she changed her disguise after most of her captures. The double success of the Burgrave who commanded her in breaking the British blockade, both outwards and inwards, was very creditable to him, although the time of the year made the weather conditions favourable to such an enterprise. It was also a satisfactory feature that no loss of life was involved in his attack on the traders, except in the case of the steamer Clan

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Mactavish. This vessel, armed with a small gun astern for defence, resisted the Möwe, and went down with her colours flying; her action, as Sir John Jellicoe said, filled the seamen in the Grand Fleet with admiration.

Combined operations against German possessions.

Conjoint operations for the subjugation of German territory over-sea have been continued during the year. The campaign against German South-West Africa under General Botha came to a brilliant termination with the final surrender of the enemy on July 8, 1915. The General acknowledged in a speech on his return to Capetown that the success of his expedition would have been impossible but for the help of the British Navy, for whose protection South Africa ought ever to be grateful. Similarly, the conquest of the Cameroons was completed on February 18, 1916, with the capitulation of the German garrison at Mora. In East Africa operations are still proceeding, with success at the time of writing, under the command of General Smuts. Besides rendering indispensable aid of what may be called an indirect character, by keeping the ring, the British Navy has directly helped in most, if not all, of these colonial expeditions. Naval armoured cars were prominent in South-West Africa and elsewhere. In the Cameroons the coast and estuaries were cleared of hostile craft, and the troops transported by sea, while a force of Royal Marines occupied one of the important towns, and a naval brigade accompanied the Army. Lieutenant L. H. K. Hamilton, R.N., after good service in command of the river flotilla which drove the Germans out of Dehane, in December, 1914, won the D.S.O. for transporting a naval gun hundreds of miles by river and overland to the siege of Garua, which was thereby forced to surrender on June 10, 1915. The ex-German Colonies were thus further fruits of sea-power gathered by the British Fleet.

CHAS. N. ROBINSON.

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CHAPTER II.

Strategy and the War.

War, said Napoleon, is an affair of positions. It is, one may say, an affair of strategic geography, and perhaps, when the historian of the future casts his retrospective searchlight into the abyss of the present time, to investigate the causes of the war, he may discover that the facts of geography lay near the root of the quarrel. At any rate, it is clear that, of the two chief protagonists, one is a great Sea Power, and an Island Kingdom, placed at the gateway of the oceans, and having vital interests in every sea, whose Empire, moreover, is the gift of sea power, while the other is a great Land Power, the leading Military Power of the world, whose future, nevertheless, has been declared to "lie on the water," and whose floating commerce, it was said, "cast a close net about the globe"—looking, therefore, out upon the oceans through the sea gateways which Great Britain commands.

Naval strategy is the daughter of geography, and geography shapes the conceptions of strategy and directs its ends. The great strategy which the British Empire has made its own, and used effectually in this war, is summed up in the possession of command of the sea, by which is meant control of communications on the seas and oceans of the world. It is a commonplace to say that the maintenance of the Navy is a matter of life or death to us. The Army is much, but if the Navy failed nothing would stand between us and final disaster. The Navy is a cheap service, as the war has shown, and "economy" on the requirements of the Flect would be the worst form of folly. Strategic geography.

The main features of naval strategic geography, so far as they concern ourselves, are centred in the fact that we possess, or in a large measure are able to control, nearly all the great gateways of the world—the Straits of Dover and the English Channel, the North Passage on either side of the Shetland Isles, the Strait of Gibraltar, the Suez Canal, the Strait of Bab-el-Mandeb, and the Strait of Malacca. It may be said also that the Falkland Islands might be organised as a base to control the entrance to the Straits of Magellan and the passage round Cape Horn.

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Silent pressure of the Navy.

The Navy never oppressed or injured, but on the other hand, by its influence, protected the floating commerce of our present enemies, but no sooner was war declared than the gateways of the oceans were closed or placed under guard, and the absolute suppression of enemy commerce at sea began. The semi-official "Nauticus," in 1914, said that, though foreign trade was the strength of Germany, it was the Achilles' heel of the new German Empire. If the coasts were blockaded the "life stream" of the people would be constricted, and, though "sudden death" would not result, misery would follow. Such are the terrible effects of naval compression in war. There was instituted in pursuance of them what came to be known as a blockade of the enemy coasts, and perhaps no more impressive illustrative statistics could be found showing the effectiveness of that constriction than those of the United States' direct exports to Germany, which, having been of the value of £31,220,190 in 1914, fell to £2,357,770 in the following year, while the like figures for Austria showed a decline from £2,559,699 to £20,905. While this has been the situation created by the blockade, the Navy has made the flank and rear of the armies secure. Not an enemy soldier has gone afloat either to attack the Allies or to defend what was threatened or attacked by them. Meantime our own commerce has continued, though not altogether unimpeded, owing to the action of enemy raiders and submarines, and our armies have come from every part of the world, and been sent to many scenes of operations, and supplied continuously with every requirement that armies can call for in the field.

Subsidies and armies in the field.

There are interesting and perhaps inevitable analogies between the present war and the great conflicts directed by the two Pitts. Both of these statesmen extended and consolidated our sea power, laid the world under contribution to our commerce, controlled the sea by all-powerful fleets, settled and maintained colonies, increased resources and multiplied naval means. Each of them had a two-fold policy, a naval policy and a policy of subsidies. Neither of them made any greatly successful enterprises on the Continent, and their scattered and isolated military efforts were costly in money and life. The subsidies both by guaranteed loan and direct gift amounted to a mere bagatelle compared with the colossal sums handled to-day, but they represented a policy, and relatively they were of exceeding importance, and the nerve, and perhaps the inspiration, of foreign armies fighting for our cause on the Continent. But both the Pitts knew well our military impotence in their time. The armies which the younger Pitt could have controlled would have been no match for legions of veterans whose business was war and with whom war

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was a passion. It was economically wiser to control the sea and let others do the fighting for us.

In the present war we are presented with new conditions of high strategic importance. For the purposes of the war we have become a great military nation. This is entirely new in our history. We remain the supreme Sea Power, but we are setting millions of men in the field. Unassisted, or in association with our Allies, we have landed armies in Mesopotamia, East Africa, Egypt, South-West Africa, the Cameroons, Gallipoli and Macedonia; and all this in addition to the great forces fighting in the main theatre of war. The war is amphibious in the truest sense, and demands a strong and united direction if the fruits of victory are to be the soonest secured.

Inaction of the German Fleet.

We have been confronted in the naval sphere with a strategical situation, which has been witnessed many times in naval history, but has never been so fully exemplified as in the action, or rather inaction, of the German High Sea Fleet. In land operations, given sufficient force and means of movement, it is nearly always possible to bring an enemy to action, if action be desired. He may, it is true, establish himself in a secure position on occasion, as Wellington's troops did behind the lines of Torres Vedras, but it is always theoretically possible to attack him. The same is not the case in naval warfare. The seas are wide, and can be traversed with great rapidity in any direction. Thus a belligerent can, in particular circumstances, retain his fleet outside the range of operations, and yet ready for immediate action. Mr. Julian Corbett ("Some Principles of Maritime Strategy") has acutely pointed out this condition as germane only to naval warfare. It is possible, he says, for the enemy to remove his fleet from the board altogether.

> He may withdraw it into a defended port, where it is absolutely out of your reach, without the assistance of an army. No amount of naval force, and no amount of offensive spirit, can avail you. The result is that in naval warfare an embarrassing dilemma asserts itself. If you are in a superiority that justifies a vigorous offensive and prompts you to seek out your enemy with a view to a decision, the chances are you will find him in a position where you cannot touch him. Your offence is arrested, and you find yourself in what, at least theoretically, is the weakest general position known to war.

The Germans have practised this reticent strategy from the beginning of the war onward until the date of this present writing, nineteen months after the outbreak of hostilities. How soon they may essay to enter upon a different policy no one can tell. Their fleet during all this time has been a fleet "in being," in the sense that it has possessed the potentiality of action. One portion of it did, indeed, take action, when the battle-cruiser squadron of Admiral Hipper issued forth and bombarded Hartlepool, Whitby and Scarborough; but its boldness was futile, led to its being crippled, and ultimately

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brought it within an ace of complete disaster. This strategy of the "sally" belonged to an old order of German ideas, and was thought to have been abandoned. In any case, it was the feeble stroke of ill-directed force.

The enemy's naval strategy.

The strategy pursued by the German Fleet merits consideration. From one point of view the Fleet seems to have failed to fulfil some of the main purposes of its creation. Its inaction appears anomalous and in direct conflict with the strategic conceptions which were said to underlie its creation and expansion, namely, the necessity of protecting—or endeavouring to protect—foreign possessions and floating supplies and trade. "Nauticus," published a couple of months before the outbreak of war, insisted most forcibly, and with a wealth of figures and statistics, that the economic prosperity and even the very life of Germany depended upon foreign commerce. Her distant possessions were to be protected by sea power; one-third of the national requirements in foodstuffs came from abroad; and a proportionate part of the population depended upon foreign supplies, two-thirds of which came by sea. The notion of famine resulting from naval compression was insisted upon. This was also the real or ostensible reason for the institution of the German so-called and attempted "submarine blockade" of our coasts. The time was near, we were told, when Germany would no longer have food for her people. "Nauticus" said that economic questions were rightly set forth in the propaganda of the Navy Law, though the value of the Fleet could not be measured merely by such considerations. It was in itself a highly important political and strategical force, and, in its kind, "a military instrument at sea as the army was on land."

Internal condition of Germany.

Germany, said "Nauticus," must depend upon herself. She could not trust to others where her very life was concerned. Her Fleet was neither a luxury nor a "sport," but a vital strategic necessity—a *Lebensnotwendigkeit*—and, as the Emperor had said, in the early stages of the Navy Law programme, "bitter was the need of a strong German fleet." The strategy implied was that of the defence of world-wide interests and the provision of vitally necessary supplies for home. But now we are confronted with the anomaly that the distant possessions have fallen one by one, and that the foreign commerce which was vital has disappeared, and yet that the fleet, whose power or influence was so bitterly necessary, has so far remained inactive. The truth appears to be that the Germans, in regard to home supplies—by foresight and economy of means and resources—created for themselves economic means which have gone a long way towards neutralising the immense strategic advantage

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which the British Navy gives to the British Empire. They have, at least, falsified the prognostigations which figured so largely in all the arguments for German naval expansion. A whole literature seems to be belied by the situation they have created. How, it has been asked, would this situation react upon the Navy? Was it intending to strike a blow, and actually preparing to become a military instrument at sea as the army is on land?

Reasons for German reticent strategy.

But, looked at from another point of view, the inaction of the main body of the German High Sea Fleet has been dictated by reasons which appear strategically sound, and are undoubtedly reasons of necessity. Admiral von Tirpitz has stated, in an interview, that the German Fleet would not be so foolish as to play its enemy's game, would not be brought to action at a disadvantage, and would await its favourable opportunity, and Admiral von Koester has expressed himself in the same tone. British admirals have spoken in a like sense in the past. Though Hawke said it was a matter of indifference to him whether the enemy were equal, or had one ship more or less, though Jervis at St. Vincent declared that if there were fifty sail of Spaniards he would go through them, and though Nelson made light of odds against him when much was at stake, it is a fact that no British admiral has ever wished to engage in inferior strength if by any possibility he could fight with superiority. Nelson himself said, "Do not imagine I am one of those hot-brained people who fight at an immense disadvantage without an adequate object." We are accordingly confronted by the Germans up to the date of the present writing by their now well recognised reticent and waiting strategy.

Meanwhile the British Grand Fleet has not fought its Trafalgar, but has so far won the fruits of victory without striking a blow, though the Commander-in-Chief would say with Nelson, "You may rely that, if it is within the power of men to get at them, it shall be done." No words, be it recognised, could exaggerate the consequences of naval failure or disaster. Not only would Great Britain be ruined and the Empire shattered, but Russia would be cut off, the French would be overwhelmed, and Italy would be crushed.

Sea power and land power.

But this war will not be won by us by naval force alone. Professor Jaeckh, a well-known German Orientalist, speaking in February in Berlin, said, indeed, that in the long run land power would show its superiority over sea power, "whatever British and American theorists might say." His bold thesis has not been proved. The two factors are distinct from one another, though strategically related, and each is complementary to the other. Both powers are being employed by the Allies. It may be admitted that, in a certain sense, sea power may have lost something of its relative effect in

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campaigns such as that we are witnessing. The enemy moves upon "interior lines," and in these days of railways, engineering construction, and motor transport, operations on such lines—lines inaccessible to the opposing Powers, and especially incapable of being attacked from the sea—become more effective.

World influence of sea power.

This is a question of high interest which well merits investigation. First, let it be observed that naval strategy is of a larger order than the strategy of armies by reason of the element in which it is exercised. It may secure victories, as have been shown, without striking blows, and it may strike blows in one part of the world which find their effect in another, or, failing to strike them, the whole course of events may be changed. If, for example, Admiral Darby, off the South Coast of Ireland, in 1781, instead of executing his precise orders, had fallen upon and defeated De Grasse, when the latter had issued from Brest, the Americans would never have received the support which enabled them to take Yorktown before the year closed, and the whole history of events in that part of the world would have been written differently. If the squadron of Count von Spee had been destroyed in Far Eastern seas, as with greater force might have happened, Admiral Cradock would not have met with disaster off Coronel. It will be observed also that fleets operate strategially across great spaces of water, untrammelled by the long trains on fixed lines of communications which sometimes dog the march of armies, and unchecked by the trenches, wire entanglements and other obstacles which bar the advance of military forces in the field. Pocock and D'Aché, Hughes and Suffren, carried their forces into East Indian waters, Rodney and Guichen fought out their campaign in West Indian waters, and to the same region Nelson pursued Villeneuve. The operations of the sailing navy were thus world-wide, but they developed slowly. Villeneuve left Toulon on March 30, 1805, and on May 14th arrived at Martinique; Nelson was at Barbadoes on June 4th; Calder's action was fought on July 22nd, and Trafalgar not until October 21st. Contrast such operations with the speed of naval movements in modern times, as exemplified in the rapid assembly of forces in the Mediterranean and in the great strategic stroke planned by Lord Fisher in 1914. Lord Fisher was appointed First Sea Lord on October 31st, Admiral Sturdee was despatched on November 11th, and Count von Spee's squadron was destroyed at the Falkland Isles on December 8th.

Naval transport and the Army.

It is unnecessary here to add anything to what has been said above concerning the services of the Navy in suppressing enemy commerce, and transporting to the western theatre of war, and fully supplying, armies brought from many parts of the world. Mr. Balfour,

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First Lord of the Admiralty, stated in the House of Commons, as the chief work of the Allied Navies in the Mediterranean, the transport of large military forces to Salonika, Valona and Egypt; the successful evacuation of the Allied Expedition to the Dardanelles, and the transportation of the Serbian Army from Albania, the latter a service chiefly due to the ability and energy displayed by the Italian Fleet. Sea power was thus operating strategically in aid of land power. He might have referred to the very successful operations of the submarines in the Sea of Marmora. Their appearance in the Baltic is well known. The ubiquity of sea influence was exemplified in these and other movements, as in the landing and support of troops in Mesopotamia.

But the Fleet cannot, by its own force, operate beyond the range of its guns. It can prevent, and it has prevented, the enemy from establishing effective submarine and airship bases on the coast, or near the coast, of the occupied part of Belgium; and it can render like services elsewhere. It can secure and contribute to the success of localised expeditions near the coast. Beyond operations of this nature the Navy cannot go, so far as direct effect on land operations is concerned; but this alone is a very important thing. How the Navy supported the Army in the landing in Gallipoli is well known, and, in Sir Ian Hamilton's words, it was "father and mother" to the troops. The Duke of Wellington expressed to Rear-Admiral Markham, in September, 1813, his view of the relation of the Fleet to his armies: "If anyone wishes to know the history of this war," he said, "I will tell them it is our maritime superiority gives me the power to maintain our army while the enemy are unable to do so."

Limitation of naval action.

The limitations which are set to the direct operations of fleets are self-evident, and the barriers are fixed, though they have been extended a little inland by the introduction of long-range guns, and the Navy may, in a limited measure, extend its operations over land by the enterprise of naval aircraft. There is a strategical limitation also—strategical in the sense of what has been called the "silent" effect of sea power, its constricting effect upon the vitals of blockaded countries—due to the advance in material means and welfare and the progress of science in modern times. The influence of sea power upon the internal condition of such countries has been very considerably reduced by the development of rapid communications within them. If Germany had been dependent for the distribution of food and other supplies upon the slow transport, by means of horse-wagons and river craft, of former times, it is conceivable that our blockade might have brought the war to an end within twelve or

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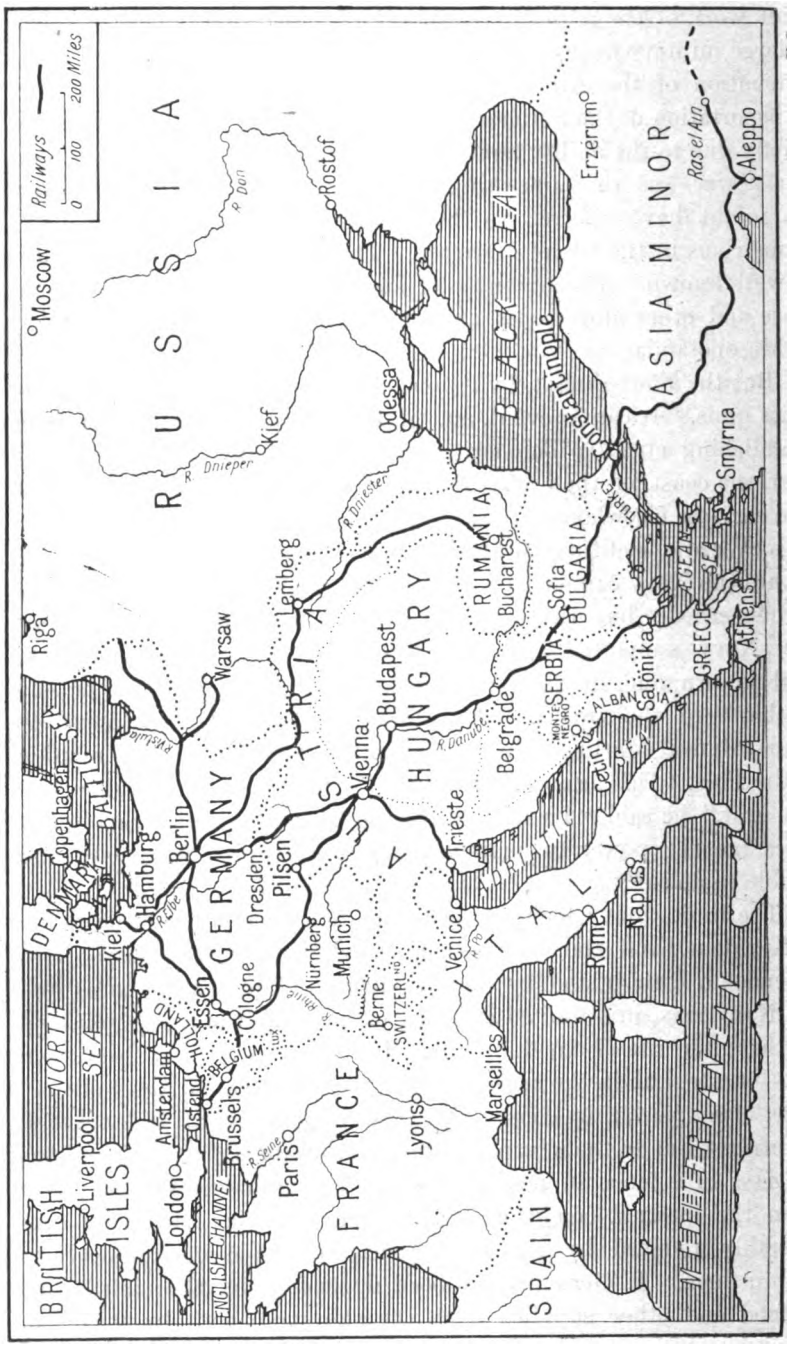

"Geographia," Ltd.] MAP SHOWING THE MAIN INTERNAL RAILWAY COMMUNICATIONS OF THE ENEMY. [55 Fleet Street, E.C.

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eighteen months. The great progress in every department of applied science, as in the conservation of food-stuffs, and the production of synthetic substitutes for supplies cut off, operates powerfully in the same direction. Thus sea power has manifestly lost something of its effect in this sphere of its strategic influence.

Army transport on land.

We may note, too, that while the barriers of naval action are fixed, military forces and supplies within countries subject to naval constriction are free to operate, and in this war have operated, in strategic movement, with infinitely greater speed and certainty than was possible in the old wars. Until modern times, in the great extension of railways, no army could march more than 200 miles in 15 days. Napoleon thought 10½ miles a day a very good performance. One of the most rapid continuous marches on record was his movement from the Channel to the Rhine, in 1805, but he marched through a friendly country, where all supplies were at his disposal. He broke up his camps at Boulogne, and his three army corps marched on three distinct lines, covering 400 miles in 25 days, the rate being at an average of 16 miles a day. For a division of all arms, 15 miles a days was considered a good march, 15 to 20 miles a long march, and anything beyond 20 miles a forced march. Some extraordinary marches are on record, it is true—as in India in the chase of Tantia Topee—but they were marches of small bodies of picked and mounted troops travelling very light. The rate of progress decreased as numbers increased. During their flank march on Sedan, in 1870, the French covered only 9½ miles a day. Marching on roads depended for rate and distance on heat, high winds, heavy rains, mud, snow, steep hills and darkness; and no armies have ever had with them such heavy guns, such immense supplies of ammunition, and such long trains of other requirements as are transported in these days.

Advantage to the enemy of internal railway communications.

These facts are mentioned by way of contrast to the rapid movements of modern armies traversing interior lines, and to the certainty of their supplies. The Germans have multiplied their forces by the rapid transport of troops to various theatres of war. General von Kluck made an astounding march at the beginning of the war, assisted enormously by motor transport. Men who are employed in Macedonia to-day may be fighting within a week in Flanders or on the Meuse. The rapidity with which transfers of troops have been made from one front to another have caused the movements of the German army to be likened to those of a shuttle through a loom. So efficient is railway engineering construction that tracks can be laid, bridges repaired or replaced, and tunnels opened with such celerity that the best efforts at destruction of a

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retiring army do not very long preclude the enemy's means of advance. The heaviest war material supplied from Essen and the Skodawerke, at Pilsen, has appeared on every front occupied by the enemy. Against the Belgian fortresses 16·5-in. Skoda howitzers were brought, which had come from Pilsen by rail. Large numbers of heavy Krupp howitzers from Essen have been used on both East and West fronts, and appeared also in Gallipoli. Guns of 12 in. and 17 in. were sent by rail to the Russian and Serbian fronts, and, it is believed, brought back again to be employed in the great attack on the entrenched camp of Verdun. At an earlier date a 15-in. naval gun was mounted in the rear of Dixmude, and bombarded Dunkirk at a range of 23¾ miles. This last-mentioned firing was probably experimental, and doubtless other guns of like character were ready to be mounted behind the dunes at Calais for the intended bombardment of Dover.

These new developments have an important bearing upon strategy, by giving greater opportunities and powers to armies favourably circumstanced for their use. Doubtless the German professor mentioned above had such things in his mind when he said that in the long run land power would show its superiority over sea power. Very important advantage results to the enemy from the fact that by internal railways, and since the occupation of Serbia, troops from the heart of Germany and heavy ordnance from the Rhine, could, within a few days, arrive on the East or West fronts, or before Salonika, or at Constantinople. Sea transport, whatever its advantages, would not enable us to do these things in anything like the same time. Railway transport does not affect armies only. Submarine boats in sections have been sent by this means from Kiel to Trieste, and also to the Danube, and probably to Constantinople, and all manner of naval supplies required by the Austrians and Turks have reached them over land.

Balkan and Baghdad railways.

Half unconsciously English people have always viewed with a certain distaste the construction of trans-continental lines which threatened to rival the lines of external sea communication, and to diminish the effects of sea power. The objection has been conscious in some people, but instinctive in the mass of the population. There was a time when we regarded the Trans-Caspian line as promising a certain danger to India. The Germans and their Turkish allies were exalted when the first *Balkanzug* ran through from Berlin to Constantinople, knowing the strategic advantages of the open line. We have viewed with suspicion the Baghdad Railway scheme, and have offered a good deal of opposition to it. Though uncompleted, it enabled the Turks to reinforce very heavily their troops at Baghdad

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to resist our advance. Before the war His Majesty's Government were very desirous of coming to an understanding with Turkey on the subject of the *status quo* in the situation in the Persian Gulf, and the control of the line projected from Baghdad to Basra and Koweit. These questions were indissolubly bound up with the strategy of internal railways and external sea communications, and finally with the ability of the Navy to give effective means of defence to India and our possessions in the East.

Power of the impending stroke.

It must also be recognised that the greater development of internal communications in the Central States of Europe has enabled the enemy armies to assume, in no small measure, the character, and the power also, of strategic action which belongs pre-eminently to fleets, namely, the power of the impending stroke. This strategy, it is true, is not new to armies, and has been employed by Napoleon and other generals, but always in land operations in a restricted sphere. It has always been observed of the operations of fleets that so soon as they were at large, there was uncertainty as to where their blow would fall. When the French armaments were preparing at Toulon in 1798, it was supposed that they were intended for Sicily, Corfu, Portugal or Ireland, or to join the Spaniards at Cartagena, and only the prescience of Nelson enabled him to discern, when they escaped to sea, that their real destination was Egypt. When Villeneuve escaped from Toulon in January, 1805, Egypt was again in his mind, and to Egypt he went. He thought an attack might otherwise be made upon Sardinia, Sicily or Naples. As a matter of fact, Villeneuve was bound to the West Indies, with orders to return for a great stroke in the Channel. Naval history is full of examples of the uncertainty that follows the issue of naval forces to sea. Even if they do not issue at all, they hold their weapons poised, as it were, ready to strike, and thus often immobilise large bodies of troops. The very fear that some allied naval and military enterprise might be designed against the North German coasts has forbidden the Germans to withdraw troops from that region for service where their presence might even have turned the scale.

Mobility of modern armies.

But now we perceive that rapidly moving armies, or armies able to move rapidly, exercise, in a degree, the same strategic power. By the occupation of Serbia by the enemy forces the direct line from Berlin and Vienna to Constantinople was opened, and this, in association with the Anatolian and Syrian railways, enabled a formidable movement against Egypt to be planned. It was announced that an "Army of Egypt" would be constituted out of Turkish troops, with a stiffening of German officers and selected men, and everything appeared to be ready for the enterprise. It is true that the position

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of the British and French troops at Salonika, the advance of the Russians on Erzeroum, and consideration of the possibility of the line being cut in the vicinity of Alexandretta or at some point on the Syrian coast, may have induced counsels of prudence.

Threats against Egypt and Salonika.

On the other hand, it is possible that the much-advertised movement against Egypt was merely a threat, and never intended to be a serious operation at all. In any case, the preparations had the effect of causing British troops to be sent to that country, and to considerable works being undertaken for the defence of the Suez Canal. The belief that a tremendous attack was intended to be made on Salonika caused a great army to be assembled at the threatened point. General Sarrail was withdrawn from the French defences on the Meuse to direct operations there. Let it be admitted that if the place had not been well defended the enemy would have gained an outlook and established a base on the Ægean Sea. But whatever was intended, the Germans had larger plans in view. Salonika was secondary, and all the time they were gathering new forces, big guns and every supply necessary for far-reaching operations in the new theatre of war in the West, on the Meuse and elsewhere. Thus the strategic initiative on land remained with the enemy, for the reason that he possessed railway mobility in a very high degree, just as the strategic initiative at sea has rested with the allied fleets because of their floating mobility wherever they have desired to use it.

The Adriatic and Ægean.

It was sound policy that sent the Allies to Salonika, whatever might be the force required. The *status quo* in the Mediterranean was at stake. Austria-Hungary, that predominantly Slav state, has not only striven for the domination of the Balkans, but for an outlet on the Ægean. This was a great prize which presented itself, in the light of war, and in a possibly practical form, to Austro-German strategy. Richly dowered by Nature already with the magnificent fringe of the Dalmatian archipelago, that superb base for flotillas, which has given them such influence in the Adriatic in the war, Austria-Hungary was not content. Domination in Bosnia and Herzegovina came to her with the Treaty of Berlin, and she thereby made secure her long strip of the Dalmatian coast. The provinces were admirably administered, and were annexed to the Dual Monarchy in 1908, and a railway was planned through the sandjak of Novi Bazar to connect the Austrian system with the Salonika line. Serbia was held fast on two sides, with no outlets except by the long route of the Danube and the Salonika railway, and became an economic dependent of the Austro-Hungarian Empire. Germany energetically supported this forward policy, and her

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support made it possible. But suspicion was created in Italy by her attitude, and the situation that resulted led eventually to the disruption of the Triple Alliance.

The Mediterranean situation.

Baron Aehrenthal always desired a free hand with Serbia, and in this war it has been seized, and would have brought the Austro-German forces to Salonika but for the disembarkation of the Allied troops. By her geographical neighbourhood to Macedonia the prize would have fallen to Austria-Hungary, but Germany, the dominant Power in the partnership, would have secured all she required. Salonika was merely an aspiration in peace-time, but became a definite object in war. The manifest intention was, and still is, if possible, to disturb the Mediterranean situation to the disadvantage of the Allies. The Ottoman Empire has been brought into the plan also. By a policy, the wisdom of which historians may question, we have alienated the Turks, and have lost heavily in our efforts to strike at them at Constantinople. The Germans long since saw their advantage. Turkey, said General von Bernhardi, was of paramount importance to Germany. "She is our natural ally; it is emphatically our interest to keep touch with her. The wisest course would have been to make her earlier a member of the Triple Alliance . . . Turkey, also, is the only Power which can threaten England's position in Egypt, and thus menace the short sea route and land communications to India. We ought to spare no sacrifices to secure this country as an ally for the eventuality of a war with England or Russia." This object has been attained in the present war, and some, at least, of our objects in the Eastern Mediterranean have not been achieved.

A great link of Empire.

The 2000 miles of sea which lie between Gibraltar and Port Said are a vital strategic link of the Empire. In these waters the fate of nations has been many times decided. Inexorable laws govern our strategy in the Mediterranean. In this war our interests there have increased a hundredfold. It is the highway of Empire and of commerce, and is of supreme importance to France and Italy. The enemy well knew all this. By every resource they could bring they have endeavoured to forbid the Allies to exert their power there. Their submarines have essayed to strangle the lines of trade and supplies. But, though we could not work our will at the Dardanelles, in the manner in which the operations were undertaken, the Mediterranean never saw such naval strength as is presented by the British Fleet and the fleets of our Allies, and happily no effort of the enemy can diminish the efficiency of our control.

By blockade of the Dardanelles, and our strong position at Salonika, the Turks and their German advisers and helpers have

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been reduced practically to impotence. Only in the Adriatic was the situation not clear. The Austrians possess enormous advantages in those waters. Trieste is a port possessing very great resources for the building, docking and repairing of the largest classes of warships. Pola is a great and well-defended naval port and headquarters of the navy. At Fiume are new building slips for the largest battleships, and great equipments and plant for smaller vessels, and there also is a great torpedo factory. Sebenico is a naval station with hidden waters, entered through a narrow strait. Veglia, Cherso, Lussin, Lunga and the sheltered waters of the Quarnero and Quarnerolo provide an admirable naval frontier in the Northern Adriatic. Further south-eastward the wonderful Dalmatian fringe is continued through the islands of Brazza, Lessina, Lissa, Curzola, Sabbioncello, Lagosta, Meleda and others, and the waters behind them are ideal lurking places for the flotilla commander. At the extreme limit of Austrian possessions was Cattaro, with its admirable harbours, and there for twenty years the Austrians have been providing naval supply and repairing resources. The Italians possess no such advantages, and the Adriatic coasts not only present no harbours of any note, but are open to territorial attack. From Venice south-eastward to Brindisi there is hardly a port in which a flotilla could feel secure as a base, and not indeed until the heel of the "boot" has been rounded and Taranto has been reached, do the Italians possess a naval port.

Austrian strategy.

This geographical situation has markedly affected the course of operations in that region. The Austrians have laid mine-fields, and their flotillas, strengthened by the arrival of submarines from Germany, both overland in sections at Trieste and by larger boats which entered the Mediterranean at Gibraltar, have found many opportunities for their action. The battleships have lain in security at Pola, after the manner of the reticent German fleet, and the Allied battleships had no object in going up the Adriatic, where, moreover, they would have run risk of destruction by submarine and mine. Cruisers, destroyers and submarines have been employed by the Allies. The Italians were able to land a military force at Valona, on the Albanian coast of the Strait of Otranto, but not without risk, and there was some loss in the accompanying vessels. But naval force gave no means whereby the enemy could be prevented from occupying Montenegro, and making himself master of Mount Lovtchen, that great height from which guns could dominate part of the harbour of Cattaro, or from advancing through Albania and occupying Antivari, Dulcigno and Durazzo. By these advances, actively pursued, the Austrians aim to strengthen their hold on the

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Balkan peninsula, and especially to hold ports and harbours on the Adriatic, which will enable their fleet effectually to command its waters and to render impossible any effective naval or military operations by the Allies in its waters.

But the Allies know that the influence of Sea Power has profoundly affected in their favour the whole course of the war. It has given them enormous advantages which they could not otherwise have possessed. Not only have the French, British, and Belgian armies in the field received punctually their prodigious and necessary supplies; their flank and rear have been secure from menace or attack, and the German fleet has been powerless to assist the German army on the western front of the war. It has been powerless also to assist the army in its intended advance on Petrograd, while the Russian fleet has successfully assisted the Russian army in the defence. Admiral Kanin expressed the strategic situation with admirable lucidity to a correspondent of the *Novoe Vremya*:—

> The fundamental, strategic picture, he said, is amply clear. The Baltic fleet is a continuation of the extreme flank of the army; the task of the Fleet is as far as possible to support the movements of the army, protecting it against envelopment by the German fleet. What will happen in the future, who knows? So far, however, we may deem our work not futile. One English authority has said that in the present war there have been two turning points, neither of them particularly brilliant or vivid, but extraordinarily important—the Marne and Riga Gulf. Paris was saved on the Marne, while in the Riga Gulf the struggle for the approaches to Petrograd terminated in our favour. It is impossible to deny this. What would be the situation of the army if the Germans now occupied Riga and the entire Gulf of Riga? Look at the map and you will understand for yourself.

Never was the relation of Sea Power to Land Power better expressed.

This exposition of the strategic geography of the war shall not be pursued further. The object has been to show the general situation which limits, defines and shapes the strategy of these vast campaigns. The principles of strategy are immutable, but their application is changed by ever increasing developments of successive periods, and in this titanic struggle we observe that new conditions are powerfully influencing the major operations of the war.

JOHN LEYLAND.

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CHAPTER III.

THE NEUTRALS AND THE WAR.

The fiction of "neutral rights."

EVER since men took to fighting, the non-fighters have been busy protesting that what they called their "rights" were being interfered with; and in process of time, coming to be called "Neutrals," they invented the term "neutral rights," to which all sorts of curious interpretations have been given from time to time; but none, I venture to say, so curious as the one which the United States Government is attempting to give to it to-day. There are, as a rule, more neutrals than belligerents in time of war, and so it has come about that the defence of these neutral rights has enlisted innumerable advocates, with some of whom it has become almost an obsession. The idea that there are any belligerent rights, by the exercise of which neutrals *must* be affected, does not appear to have entered their heads; we may be sure the suggestion that those rights are interfered with by the neutrals would be scouted.

If nations could wage their battles relying on their own resources matters would be much simplified; but they cannot, and both sides are greatly dependent for supplies on merchants in neutral countries. These spend their time and energies in peace in preparing for other people's wars, and reap therefrom much profit. Being, presumably, an uninterested person, the neutral merchant supplies both sides indiscriminately; indeed, an eminent Judge once declared that it was his duty to serve the one as he served the other. The existence of friendly business relations with both belligerents puts the neutral merchant in a very commanding position, and this has materially assisted in fostering the notion of his "rights." But the term has been perverted from its normal meaning, with disastrous results, such as serious quarrels between one belligerent and neutral Governments, which the other belligerent is only too pleased to foster. If the neutral merchant has any right at all it is not the right to trade, but the right not to be interfered with in his trade; but undoubtedly the belligerent has a corresponding right, not to be interfered with in his war. And this is in truth a much sounder use of the word, because the violation of the belligerent's right does carry with it this sanction, that he who disregards it must take the consequences. The only sanction which the neutral merchant can devise to protect his "right"

Neutral "rights" imply belligerent "rights."

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is a refusal to trade with the belligerent who stops his commerce with the other. Thus we occasionally hear threats of an embargo on the export of munitions from the United States. The profits resulting from the trade being what they are, such a threat is not likely to materialise.

From a variety of causes, the chief being that no country is ever certain in which character, neutral or belligerent, it will next appear, "neutral rights" have suffered periodic inflations. I venture, with deference to its distinguished author, to say that in the United States protests the inflating process has been carried to such an extent that the bubble has come well nigh to bursting point. This renders it necessary to review the whole subject and to get back to facts. Now, the fact is that the only trade in the world which is not interfered with by belligerent action, because it is the only trade which does not interfere with belligerent action, is normal trade between neutral and neutral merchant. The formula "neutral trade is free," applied now promiscuously to everything in which a neutral merchant is engaged, never could have referred to any other than this normal trade. The modern attempt to extend to it the dignity of a maxim of International Law, and to apply it to indirect neutral trade with a belligerent, is an inspiration of the profit-seekers fostered by the theorists.

Misapplication of doctrine "neutral trade is free."

Yet it is not difficult to state the problem with precision. One of the obvious methods of weakening the enemy is to deprive him of his weapons of offence, and to cut off all chance of receiving them from obliging neutral merchants. Another equally obvious method is to deprive him of his commerce, and so weaken him physically and financially. It is just in regard to this method that the efforts of the neutral merchant are always directed to minimise its consequences, for the very obvious reason that it deprives him of his profit. Commerce is bilateral; it is based on contract, and there are two parties to every contract—in this instance, the enemy and the neutral merchant; and it is gravely asserted that a belligerent may not interfere with his enemy's commerce because the neutral merchant is interested in it and would be prejudiced. On the face of it the position does not seem to be tenable; but since there are some admitted exceptions, as they are called, to this general view of the subject, it is necessary to study it with some care.

Different classes of trade during war.

Trade may be divided into the following seven classes: (1) normal trade between neutral and neutral; (2) normal trade between neutral and enemy; (3) abnormal trade between neutral and enemy caused by war; (4) abnormal trade between neutral and neutral caused by war; (5) normal trade between belligerent and enemy;

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(6) normal trade between belligerent and neutral; (7) abnormal trade between belligerent and neutral caused by war.

Of these classes the first only does not interfere with war, and is unaffected by belligerent action against the enemy; the second is subject to blockade; the third to contraband and blockade; the fourth is affected by the doctrine of "continuous voyage"; the fifth stops altogether; it is endeavoured to maintain the sixth and seventh, sometimes by discretionary arrangements, but both are liable to attack by the enemy. From this it will be seen that in the presence of the fact of war there is not much room for the development of "neutral rights"; for in six cases out of seven they must involve some curtailment of the exercise of belligerent power against the enemy.

War must injuriously affect even normal neutral trade.

Nor even when we adopt the analogies of the common law and talk about the "common highway of nations" does the neutral merchant get much nearer to a "right." If boys are snowballing in the street, it is undoubtedly wiser for the passengers to keep out of the "war zone"; but it is by no means certain that unwisdom would not develop into contributory negligence if a pedestrian venturing too close to the fray were to be injured. So on the "highway of the nations" it is more than probable that when a battle is raging at sea the wisdom of keeping out of the way almost develops into a duty for neutral vessels. If a vessel holding her course from neutral to neutral port were hit by a shell fired during the battle, any diplomatic grumbling would be silenced by an appeal to immemorial tradition that the highway of the nations is their common battle-ground. Singular to note in passing, that the German arbitrary "war-zone," which was not necessary for defensive purposes, but was intended to be an open field of operations for the submarines, which neutrals were told they would enter at their peril, does not seem to have evoked any protest on the part of the United States.

Thus it appears that in presence of the fact of war even the right of neutrals to continue trading normally one with the other is not absolute. Spanish merchants have a right to trade with Swedish merchants; yet there could not even be a diplomatic grumble if Spanish ships were delayed on their voyage because of a battle in the North Sea between England and Germany. The strewing of mines in the "common highway," which must result in the reckless destruction of neutral vessels, obviously raises different questions.

Even in this cursory survey of the subject we see that we must take the world as we find it; and one of the things we find is that nations go to war. War is the supreme arbitrament of the nations; and when war clouds are bursting, and the lightning of battles is playing

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on the face of the waters, neutrals must sail warily even upon their lawful avocations. The only remedy would be an agreement that naval battles should be fought off the trade-routes.

Subject, then, to this exception in favour of the inevitable, the first case I have put—normal trade between neutral and neutral—is the only kind of trade which does not come within the shadow of war, and coming within the shadow suffers. The first platitude of war is that it does inevitably affect prejudicially normal commerce between neutrals and belligerents. Yet though the blameworthiness be clear, and the aggressor be pointed to with unanimity; though the violation of treaty be palpable, as by the war made by Germany on Belgium, the fact that Belgian trade with the United States has been destroyed would give no right of protest, much less if Danish trade were seriously affected by it. At least, the United States Government has made no protest to Germany on this ground. It is rather difficult to follow the logic which finds a right of complaint against our blockade policy and not against the annihilation of Belgium. Both are acts of war conceived in the hope that it may bring an enemy to his knees, and both seriously affect American trade. The dilemma has, however, been foreseen and evaded by some theorists, as we shall presently see, by the simple though curious process of denying that blockade is an act of war unless accompanied by military as well as naval operations.

I have dealt with this simple case in order that complex cases may be better understood, or rather in order that the complexity of all other cases may be appreciated. The point I want to drive home first is that the case which the United States makes against us cannot be settled by the impatient *ipse dixit* of a President, however learned. And, incidentally, this point also, that if the position of a neutral is complex that of a belligerent is far more so, and not to be disposed of by impatient critics of the Government at home.

Trade between neutral and enemy must be affected by war.

With regard to my second case—normal trade between neutral and enemy—it is obvious that if the United States claim were merely that this trade should not be disturbed, it would in effect limit sea warfare in a way in which land warfare is not and cannot be limited. By land the most powerful nation will, and always has, laid siege to fortresses, invested towns, in order to starve the enemy into submission. For the same reason blockades by sea have for long been a common custom of war. By a siege supplies are cut off from the enemy's own country; by a blockade they are cut off from the world generally. The assertion that normal trade between a neutral and the enemy must continue unaffected would, therefore, turn the neutral merchant's chance of profit into a shield

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for the enemy. Two nations are at war, and each is striving to destroy the other; the fact that contractual business relations exist between neutral merchants and the enemy, and will be interfered with, must be irrelevant.

Following out the same train of thought, it is not difficult to foresee that in the wars to come rigorous measures will be taken against neutral airships which attempt to bring supplies to the enemy.

Nature of United States' claim.

Now let us appreciate what the claim of the United States amounts to. It deals generally with normal trade; but its principal object is to preserve the *abnormal* trade between the neutral merchant and the enemy (case 3), and the *abnormal* trade between neutral and neutral merchant (case 4); it asserts that these cannot be interfered with, except in a certain manner, which the neutral himself is entitled to define and determine. Listen to President Wilson:—

> A belligerent nation has been *conceded* the right of visit and search and the right of capture and condemnation if upon examination a neutral vessel is found engaged in unneutral service or to be carrying contraband of war intended for the enemy's Government or armed forces. It has been *conceded* the right to establish and maintain a blockade of an enemy's ports and coasts, and to capture and condemn any vessel trying to break the blockade. It is even *conceded* the right to detain and take to its own ports for judicial examination all vessels which it suspects for substantial reasons to be engaged in unneutral service, and to condemn them if the suspicion is sustained. But such rights, long clearly defined both in doctrine and practice, have hitherto been held to be the only permissible exceptions to the principle of equality of sovereignty on the high seas as between belligerents and nations not engaged in war.

The form of words used should be noted: not "it is conceded that a belligerent may" do such and such things, but the "rights" themselves "have been conceded" by the neutrals.

Abnormal trade in non-contraband.

The great dispute, of course, arises in regard to cases of "abnormal trade" in non-contraband. What is this trade, even between neutral and neutral? War being the predominant fact, the inference, indeed the certainty, is that it is in some way connected with the war; is caused by the war; that it is in some way, directly or indirectly, trade with the enemy. The claim, therefore, that this should not be interfered with, resolves itself into this: that in spite of war, in spite of the belligerent prerogatives which follow in its train, one of which is to stop all supplies going to the enemy, yet neutral merchants may sustain the enemy. It is this which is unblushingly put forward as an inalienable "right"! It is, therefore, no exaggeration to say that the United States Government claims that war must be conducted in such a way as to enable neutral merchants to make large profits.

Influence of geographical facts.

I must now draw attention to the influence of another elemental fact, this time of geography. The quality of "normal" as well as of "abnormal" trade varies in each of the seven cases I have put

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according to the geographical relationship between the different countries concerned—neutral, enemy, and belligerent. An ocean may divide one from the other, or there may be no more than a land frontier. The nature and magnitude of the neutral trade must vary in each case; the intensity of belligerent action taken to counteract its influence on the war must vary too in proportion. The determining factor whether it shall continue or not in time of war is belligerent sea-power; but in the case of neutral countries which are contiguous to the nations at war and separated by land frontiers only, sea-power ceases to be a factor in dealing with it directly; and unless it can operate indirectly a belligerent, though he has command of the sea, is powerless to interfere with it. Yet it is obvious that where the ocean separates neutral from neutral country between which an abnormal trade has sprung up (case 4), sea-power again comes into its own. But the contention of the United States is that this vast weapon of war may not be used to check this abnormal trade because it would prejudice its merchants; the fact that this trade must, even though it is limited to non-contraband, conduce to prolong the enemy's staying power is treated as unimportant.

Operation of sea-power.

The doctrine of "continuous voyage" has been devised, rather it has developed, in order to alleviate the position which the neutral merchant has forced on the belligerent in the case of contraband; but the real meaning of the doctrine has not as yet been fully appreciated, and it is said not to be applicable to non-contraband.

I must pause here in the development of the argument, for it is obvious that the terms which we are accustomed to use want definition and reduction to a common denominator of language. We talk of "neutral merchants" and of "neutral commerce" without quite knowing what we mean. "Neutral" is a term specially appropriate to States; it loses its real significance when it is applied to the citizen and his trade. States buy, but do not usually sell. On the other hand, the term "belligerent" applies to the State alone; citizens fight, but do not wage war. When, however, the position of "neutrals" in war is discussed, the reference is more often to the position of the citizen merchant of a neutral country *vis-à-vis* a belligerent State: the individual against the State; and I feel sure that some of the misconceptions with which the subject is surrounded are engendered by the sympathy which the unequal contest provokes in favour of the weaker side. Some irrelevances will, I think, clear themselves away when it is realised that we are dealing with, not a simple-minded merchant, but a very clever one, who makes it his business to interfere in a war between nations, who pits his wit against a nation's power.

Misuse of "neutral" in connection with commerce.

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Neutrality a question affecting the State alone.

The term "neutral merchant" begs the question; it assumes that there are duties of neutrality incumbent on individuals. But the state of neutrality must be declared by the Sovereign Authority of a nation, and in the absence of special legislation, as in the case of embargo, the neutrality of the nation throws no duties on the citizen in regard to his trade with either belligerent.* It is undoubted that the merchants of a neutral State are not bound, like the State itself, to sit still, and it is astonishing that this point has still to be insisted on. Yet the supplying of the enemy with magnetic ore, not declared contraband, is still called by public speakers an illicit traffic which neutral nations ought to stop. It is necessary, therefore, to emphasise the fact that it would not be illicit traffic even though it had been declared contraband. Every public discussion that has taken place since the war began shows only too clearly that something is still wanting in the popular knowledge of the subject.

The idea that the neutral Government is bound to interfere in regard to trade in contraband perished long ago; but the Germans have struggled hard to revive it.

No doctrine is too fantastic, nor any too dead, to be pressed into the service of their desperate appeals to the Government of the United States to do what they know to be impossible. Yet it must not be imagined that our own theorists are unanimous in their views on neutrality. Space will not permit me to analyse them; but it is impossible not to refer briefly to Westlake's theory of "compromise," which is based on the assumed right of the neutral merchant to trade with the enemy without risk. He will not accept Gentilis' explanation that the safety of the State gives it the higher right of self-defence. He does not see in blockade which is unaccompanied by actual siege any military operation with which it would be a breach of neutral duty to interfere; and he defines it merely as a blow struck at the enemy's commerce with which neutrals "are asked" not to interfere.

Westlake's theory of "compromise."

In Westlake's argument, as in the American protests, there is the same desire to maintain the trade of the neutral merchant with the enemy; the same ignoring of the fact that much of it, though it is in non-contraband, is abnormal; the same obliviousness to the further fact that, whether it be abnormal or only normal trade, it must keep the enemy going in the fight; the same disregard of, and eagerness to control, the power of the belligerent to stop it—always the right of trade put on a higher plane than the right of war.

* This chapter deals solely with the citizen's commercial activities; all reference to what is generally known as "Foreign Enlistment" is therefore omitted.

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I confess that the struggle to find some juristic basis for incontrovertible facts bewilders me; nor can I see any difficulty in accepting, nor any reason for disturbing, the sane principle long ago laid down by Chancellor Kent, who was certainly in presence of all the history of the subject, that "the right of the neutral to transport, and of the hostile Power to seize, are conflicting rights, and neither party can charge the other with a criminal act." This evidently applies to both contraband and blockade.

Misuse of terminology of criminal law.

It will be convenient here to deal with the analogy, drawn by innumerable writers, between the international law of contraband and blockade and the ordinary criminal law. Everywhere one finds the idea insisted on of a belligerent "command" or "prohibition" to ships or their owners, of the owners of the contraband cargoes being "guilty" of breach, and of the condemnation being a "penalty" for disobedience. Nothing has done more to fog the subject, and to foster misconceptions as to the relations of belligerents and neutral merchants than this fallacy. It is impossible for one State to legislate for the subjects of another State, either in their own country or on the high sea, either in peace or war; and, as we have seen, the neutral State itself does not, except in special instances, legislate on the subject. The imagined "command" is therefore absent; consequently the terms of the criminal law are out of place. One simple test will suffice to refute the idea of criminality in the neutral merchant. He goes scot-free if he is successful in getting his contraband through or in breaking blockade. It has never been suggested that either ship or cargo or owner should be visited with any form of punishment when the ship has got safe to harbour; though, in consequence of quite another principle, the ship may be pursued. It is merely an evasion of the elementary principles of the subject to say that a ship must be caught *in delicto*, or that there is a *corpus delicti* which may be seized at sea.

Neutral States do not protect merchants trafficking with a belligerent.

The theorists all seek for some explanation of the fact that citizens of neutral States are not protected by their Governments when their property is seized and condemned—contraband, for being carried to the enemy; ship and cargo for breach of blockade. One finds it in an authorisation by international law to neutral merchants to act at their own risk; another finds it in a "compromise" between neutral merchant and belligerent; but it must be confessed that these are not more far-fetched than President Wilson's bran-new theory of "concession." Moreover, the idea of "concession" denies the right of a belligerent to a voice in the matter; he has merely to accept what the neutral merchant will concede, which is a bad beginning for a "compromise." And the withdrawal of the protection

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of the national flag from ships carrying contraband or breaking blockade, denies the right of the neutral merchant to a voice in the matter; he has simply to accept the fate which the belligerent has prepared for him, which is not a good foundation for a "concession." These *quasi*-legal terms all ignore the facts. And yet the facts are quite simple, and furnish the explanation of what happens: a ship carries contraband or breaks blockade at her peril, the peril arising from the fact that two nations are at war, and each is doing its utmost to injure the other's trade. The neutral State, in the fulfilment of its self-imposed duty of sitting still, informs its subjects that they had better not do either of these things, because it cannot and will not interfere to protect them from the inevitable consequence.

Simple principle underlying the whole subject.

I have elsewhere suggested that the secret of the whole subject was to be found in the primitive principle of natural life—"Who helps my enemy becomes my enemy"—and that the facts of contraband and blockade were perhaps the simplest examples of it. I therefore note with pleasure that Gentilis wrote thus:—"He is to be deemed an enemy who does that which pleases the enemy: so Agathius: He is a member of the enemy's army who supplies to that army the necessities of war: so Queen Amalasuintha to Justinian." And later Grotius—"He who furnishes to an enemy articles [which are useful in war only] is a direct partaker in that enemy's war." * It is difficult to fit these statements, so obvious and so true, on to the doctrine that "trade is free" at all times and in all seasons. Still more difficult to assert the neutral merchant's right to trade freely in time of war in face of the fact that it is entirely at the discretion of the belligerent to destroy it. The point which is so persistently overlooked is that the supply of non-contraband, when the belligerent has declared his intention of stopping it, is just as much supplying the enemy with necessaries for carrying on the fight as the supply of contraband.

No absolute right to trade during war.

But this "right to trade" which is so dinned into our ears—this "right" which is to remain unaffected by war! What is it? Rights arise from facts and vary with circumstances. What are called "primary rights" only remain intact till they come into contact with the rude facts of the world. The so-called "right to trade," except in the case of normal trade between neutral and neutral, comes into contact at every point with the supreme fact of war. Unless we deliberately shut our eyes, abnormal trade must be accepted as its direct consequence. Surely, then, there is no other way of expressing the result than that a neutral merchant runs counter to the warnings

* For this and other references to the old jurists I am indebted to Dr. Walker's most valuable "History of the Law of Nations."

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of either belligerent at his peril, the warnings being that he do not try to help the enemy, either by carrying him contraband or, when there is a blockade, by carrying him non-contraband. He is warned not to do these things, not forbidden to do them, either by the belligerent or his own State. The law does not interfere with commercial adventure; but in presence of the fact of war it does not protect it.

Whichever way we look at it, the predominant fact is war, and all other facts must be subservient to it, commerce especially. President Wilson turns things round the other way; his predominant fact is commerce, and he struggles to make the conduct of war subservient to it.

Contraband and blockade developed by custom.

But here comes custom on the scene, which influences nations as well as men. Custom or usage means this: that in recurring circumstances if many people are found to act in a similar way, whether by force of example or by intuition, then usage begins to congeal. But it is a sound rule of law that usage does not bind those who deliberately intend not to be subject to it. The intention to contract with reference to known usages must be apparent. Belligerency has not escaped the influence of usage; and the lines on which it would act, and the materials with which it would work in the matter of neutral trade in time of war, are very easy to trace—commercial proclivities, seeking profit out of other men's misfortunes; scientific proclivities, giving commerce a higher plane to stand on, striving to make more deadly the projectile and the detonating charge; belligerent proclivities, the desire, indeed the urgent need, of each to take all the benefit of commerce and science and prevent the other from getting any—have gradually congealed into the custom of contraband and the custom of blockade. And the usages in regard to them have fallen into two distinct channels: first, methods of preventing everything that subserves the conduct of war, generically munitions of war, or contraband of war, from reaching the enemy; secondly, methods of preventing *everything* reaching the enemy which can sustain him in fight, by blockade. And the process of congealing has led inevitably to the formation of what, for want of a better name, have come to be called "rules."

But the theorist sees in the rules a limit to the exercise of belligerent power, the exclusion of all development. He attempts to chain the devil. He would make the usage so binding that he denies to nations what the law grants to the individual, the right to declare that he will not be bound by it. And yet the whole subject—the existence of contraband and of blockade, as well as their extent—depends entirely on the express declaration of the belligerent. But here again the

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strength of facts outweighs all theories. Progress in what is called the science of war has altered the art of war, and commerce, never backward in taking the money chances that science gives her, has kept the pace, and the neutral merchant, as time goes on, grows sharper-witted than Mother Nature made him. He is perpetually inventing new methods of evading the effect on himself of belligerent action against the enemy; he protests that "trade is free" covers all his little devices for getting his goods to the enemy. The only thing that *must* stand still according to the theorist is the counter-stroke of the belligerent. Contraband must be limited by a rigorous "free-list"; blockade by the set formulas which were convenient to Nelson's frigates. But President Wilson, at times purist and theorist, at times alertly practical, in this matter is on the whole on the side of progress, as witness the following paragraph in the protest to Great Britain of April 2, 1915:—

President Wilson's recognition of "long-distance blockade."

> The Government of the United States is, of course, not oblivious to the great changes which have occurred in the conditions and means of naval warfare since the rules hitherto governing legal blockade were formulated. It might be ready to admit that the form of "close" blockade with its cordon of ships in the immediate offing of blockaded ports is no longer practicable in the face of an enemy possessing the means and opportunity to make an effective defence by the use of submarines, mines, and aircraft; but it can hardly be maintained that, whatever form of effective blockade may be made use of, it is impossible to conform at least to the spirit and principles of the essence of the rules of war. If the necessities of the case should seem to render it imperative that the cordon of blockading vessels be extended across the approaches to any neighbouring neutral port or country, it would seem clear that it would still be easily practicable to comply with the well recognised and reasonable prohibition of international law against the blockading of neutral ports by according free admission and exit to all lawful traffic with neutral ports through the blockading cordon. This traffic would, of course, include all outward bound traffic from the neutral country and all inward bound traffic to the neutral country except contraband in transit to the enemy. Such procedure need not conflict in any respect with the rights of the belligerent maintaining the blockade since the right would remain with the blockading vessel to visit and search all ships either on entering or leaving the neutral territory which they were in fact but not of right investing.

Yet, in spite of this enlightened statement, his residuary claim is of the narrowest. He resists the propulsive forces which war has set in motion; his back is against the wall, and he defends the American traders with an impossible proposition. He defines "lawful traffic" thus: "Innocent shipments," which, he asserts, "may be freely transported to and from the United States through neutral countries to belligerent territory."

It is impossible to exaggerate the importance of these statements —the high level to which the main proposition rises, the depth of the fall in the conclusion. They contain not only the kernel of our dispute with the United States, but the key to the future of International Law. *At last*, the issue is definitely joined between the narrow formalism of the books, which learnedly discuss the rights of nations as they would the vicarious liability of a farmer for the

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trespass of his cow, which strive to mould the actions of nations at war into little rules, to curb the spirit which the palpitating forces breeding war have engendered. What I mean, then, by the high level to which President Wilson has attained is that he has recognised the existence of these forces, and has admitted that the "rules" of blockade, which were the narrowest of the narrow, must disappear and give place to a larger conception of the exercise of belligerent power in this direction.

Inapplicability of old rules of blockade to new conditions.

Think for a moment what the first of the old rules was: that the blockading squadron must lie off the coast, in the offing as it was called; and there were some who "held" that the ships must be anchored, and some who "contended" that a blockade by cruisers was inadmissible. Then, again, there was a "school" which maintained that the effectiveness of a blockade must be demonstrated against every vessel which tried to reach the enemy coast; and there was another "school" which struggled for a larger measure of effectiveness, and asserted that a cordon of cruisers created the essential imminent risk of capture to the blockade-runner. Meanwhile the enemy's weapons of naval offence were developing—swift cruisers, submarines, mines, aircraft—and it was obvious that "blockade" must entirely disappear if the old rules were adhered to.

But the disappearance of "blockade" would carry with it the evanescence of the "right" to stop all supplies getting to the enemy, because "blockade" was the common method by which that "right" found expression. But how could this "right" disappear if the power, out of which it had developed, still exists? The fact that difficulties have arisen in putting the old methods into force only means that new methods of exerting the power must be discovered; otherwise the enemy would escape the exercise of the power altogether. It is true that the exercise of the power must still be demonstrated as in old days; there must still be a cordon of vessels to create effectively the imminent risk of capture, but it need no longer be off the coast. It may be stationed at a considerable distance from it, so always that it be effective to its purpose, which is the only real, because the only obvious, limitation. And geographical considerations cannot be ignored; rather do they indicate the position of greatest effectiveness for the cordon. This President Wilson has recognised. But is it necessary to apply to this new condition of sea affairs the old term "blockade"? Talking colloquially, one might well say that the far-off squadron was blockading the enemy's coasts; but this means no more than that it was blocking access to it. But to declare this to be a "blockade"—as the United States is said to have suggested, and as many people

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in this country urged—would mean that all the old "rules" of blockade would have to apply to the new conditions. And some of them would, I think, be impossible of application.

It has always been held (to adopt the language of Art. 4 of the Declaration of London) that "a blockade is not regarded as raised if the blockading force is temporarily withdrawn on account of stress of weather." It was never very easy to understand the practical meaning of this rule. Neither owners nor shippers were punished for breaking blockade. The vessels and cargoes were confiscated if they were caught; they got through if they could, and the withdrawal of the squadron increased the adventurous skipper's chances if he chose to brave the storm. If this was possible with a close blockade, his chances must be largely increased with a far-off squadron, if it should temporarily disperse on account of bad weather.

Access to neutral countries must be barred by new form of blockade.

But there was another of the old rules of greater importance, which would inevitably be affected by the new conditions. It is thus expressed in the Declaration of London:—"A blockade must not extend beyond the ports and coasts belonging to or occupied by the enemy" (Art. 1); "The blockading forces must not bar access to neutral ports or coasts" (Art. 18). The meaning and origin of this rule under the close blockade were perfectly clear; it was intended to bar access from neutral countries to the enemy, but not from one neutral country to another.

But directly it is admitted that the cordon of cruisers may be stationed at a long distance from the enemy's coast, the access from neutral to neutral will in fact be blocked. Here, then, was the conflict of "rights" which the United States had to consider In the opinion of the Government it was capable of adjustment; the spirit of the principle could be observed, though the letter might be discarded, "by according free admission and exit to all lawful traffic with neutral ports through the blockading cordon." It is further explained that "this traffic would, of course, include all outward bound traffic from the neutral country and all inward bound traffic to the neutral country except contraband in transit to the enemy."

Blockade based on right to stop all supplies going to the enemy.

Here, then, is the first stage of the matter solved; and it is undoubted that in the first of these two sentences there is a large and wise development on the side of progress, a recognition of the spirit which alone can keep International Law alive. But, I ask, what is this new principle but a recognition of the belligerent "right" of stopping all supplies going from neutrals to the enemy, while at the same time endeavouring to preserve in its real meaning the old principle that "neutral trade is free"? We have, therefore,

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to enquire whether this endeavour was successfully expressed in the the second and limiting sentence given above.

Meaning of President Wilson's "lawful traffic."

The term "lawful traffic" is captivating; it is difficult on the face of it to see any objection to its use. The sentence beginning "This traffic of course includes" seems merely to have been introduced in order to make it clear that both inward and outward traffic are included in blockade, a point sometimes overlooked. The sentence follows in pleasant grammatical sequence the "free admission and exit" used earlier in the paragraph. But, strange as it must seem, this is not its meaning. The emphasis is on the little word "all"—"all traffic"; and what the paragraph means is, that while it is realised that the day of old doctrines is passed so far as they relate to blockade, yet the President seeks to apply the simplicity of "neutral trade is free" to most un-simple conditions. Earlier in the protest is that sentence already set out, the master-key of the American contention, in which "lawful trade" is replaced by "innocent shipments," on the face of it an equally inoffensive expression. I reprint the sentence on account of its extreme importance—"Innocent shipments may be freely transported to and from the United States through neutral countries to belligerent territory, without being subject to the penalties of contraband traffic or breach of blockade, much less to detention, requisition, or confiscation."

and "innocent shipments."

Now I venture to say that that old formula was never capable of such an interpretation. Underlying it was the assumption that trade between neutral and neutral had nothing to do with the enemy. In the days when it came into vogue it never entered people's minds that shipments of any sort could be "freely transported . . . through neutral countries to belligerent territory." It could never have been framed on the basis that neutral trade with the enemy through the intermediary of another neutral was free.

Transport of supplies to enemy through neutral countries.

This little dialogue will, I think, put the matter in the clearest light. "But wherefore should your innocent shipments go to the belligerent through neutral countries? Why should they not go direct"? "Because the direct way is blocked." "Do you mean rightfully blocked according to the usages of war?" "That is so." "Then by sending them through neutral countries you hope to evade the blocking process?" "That is so too." "In other words, then, you, the neutral merchant, deliberately set about to defeat the plan which the belligerent has, rightfully, as you admit, devised for strangling his enemy into submission?" "That is so; but I guess he's cute enough to do what he wants."

That is the situation in a nutshell. The United States admits

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that we may put our cruiser cordon a long way off the German coast, but contends that we may not avail ourselves of the benefit which this gives us, and to attain which the cruisers are in their stations, to stop all supplies going through neutral countries to Germany. "All supplies" includes conditional contraband when it is for civilian use, and non-contraband; therefore the President's secondary proposition deliberately blocks development just at the point when it is most essential to meet the changing circumstances of war, and destroys the value of his primary proposition.

The right to stop conditional contraband

Consider for a moment the question of "conditional contraband." It is not liable to capture unless it is destined for the armed forces of the enemy, because the term means "articles susceptible of use in war as well as for purposes of peace." The first article in the list given in Art. 24 of the Declaration of London is "foodstuffs." The old idea of protecting the civil population from the consequences of war cannot now be maintained in face of the new conditions of raising armies, expressed by the formula "a nation in arms." Yet this idea was completely ignored when a belligerent resorted to a close blockade. The President contends, nevertheless, that it must not be affected by the new conditions of blockading, but must be allowed to pass to the enemy, subject only to the condition that it goes through a neutral country first.

and non-contraband going to enemy through neutral countries.

Consider too what "non-contraband" means, and how every endeavour has been made under the influences of peace to increase the "free list." The first article given in Art. 28 of the Declaration of London is "raw cotton"; the second, "oil seeds and nuts"; both of them essentially contraband within the recognised meaning of the word; for though saltpetre is as "villainous" as it ever was, high explosives are the genius of this hour of war, and for their making science has discovered the latent wickedness of the simplest things. "Innocence" is passing out of the vocabulary as it passed out of Eden.

Blockade was an effective means of preventing these getting to the enemy without examining their special usefulness to the enemy in war; yet they are among the things which are included among the President's "innocent cargoes"; they are among the things which he is so anxious to get through to Germany *viâ* the neutral ports because his traders are not allowed to send them direct to the enemy. They cannot send these "innocent cargoes" direct to the enemy because of our cruisers; therefore, it is asserted, they have a right to send them by indirect and devious routes.

What a strange misuse of a simple word! "Innocent" means incapable of doing harm. I pray my readers to follow me. The

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belligerent is the sole judge of whether certain things, or all things, will do him harm; and he has it in his power to declare that nothing shall pass to the enemy which can sustain him in the fight. But anything that does him harm *pro tanto* sustains the enemy. So we may, I think, rule out the word "innocent."

And what of "lawful"? Presumably it is the embodiment of that ancient formula "neutral trade is free." This much is agreed, that "neutral trade" means trade between neutral and neutral merchant. But here comes President Wilson with his ingenious gloss. He wants it to include trade between neutral merchants which the consignor intends to pass on to the enemy. Where is the authority for this strange proposition? Let us see what lies underneath it. The neutral consignee in, say, Holland may have had these goods consigned to him from, say, the United States, with the express purpose of selling them to some German in Berlin. He may, indeed, be his agent, perhaps merely his forwarding agent; for that matter the German in Berlin may be the German Government. Whence then comes this strange new doctrine?

Alberic Gentilis on a State's right of self-defence.

In the days of the Armada, the English "requested" the neutral merchants to discontinue their traffic with the Spaniard, who resisted it as a violation of freedom of trade. Gentilis thought that equity was with the English, but strict law with the traders. Yet he discerned the true position, declaring that the rights of traders are to be respected, but still more the safety of the State. But Gentilis never said that "strict law" was with *such* traders, or with either of them, consignee or consignor, whom President Wilson seeks to protect; on the contrary, the consignee is one "who does that which pleases the enemy," and is therefore "to be deemed an enemy." But worse remains behind. There may be no need for these same "neutral" consignees to be *deemed* to be enemies; they may *be* enemies. I have assumed them to be Dutch; they may be Germans comfortably ensconced in Rotterdam doing the business of the Fatherland. And the consignments to them are also included in President Wilson's "lawful traffic." I maintain that nothing which goes from a neutral merchant, or through a neutral merchant, to the enemy, whether it have been labelled contraband or not, has a right to be called "lawful."

Let me then make the issue plain. We contend that we have the power to stop these shipments in right of war. President Wilson contends that the only methods which we may avail ourselves of are, either to declare the goods contraband, which would not cover many of the goods in question, or to limit ourselves by "blockade" to stopping all cargoes which are going direct to Germany, but that

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we must let those through which are going deviously by way of the neutral ports; and he props up his contention with his theory of "concession."

Inception of doctrine of "continuous voyage."

But the law, or, to speak more accurately, the Prize Courts jealously guarding the right of war, long ago foresaw and upset some of the ingenious contrivances devised by the neutral merchant for evading the risk he ran from the belligerent's cruisers in carrying contraband. They invented the doctrine of "continuous voyage." At least that is how it is always put; but "inventing" is quite the wrong word; the doctrine came into being in no other guise than as the recognition of a palpable fact. "The truth," said Sir W. Grant, in *The William*, "may not always be discernible; but when it is discovered, it is according to the truth and not according to the fiction, that we are to give to the transaction its character and denomination." Thus, a vessel might put in at, or be on her way to, a neutral port; might even have her papers neatly made out to make the unwary believe that that port was her destination. But if, as a matter of fact, her real though concealed destination were an enemy port, and the neutral port merely a port of call, the Court had many ways of arriving at the truth, and held that the voyage, although circuitous, was in fact "continuous" to the enemy port, and condemned the cargo as contraband because it was in fact, and in spite of all disguises, destined to the enemy. Often the vessel was also condemned for carrying contraband. This declaration of a fact was the inception of the doctrine of "continuous voyage" as we know it to-day.

The neutral merchant's evasions.

But the neutral merchant's ingenuity having been countered, his next device was to tranship the goods at the neutral port into another vessel, hoping in this way that the idea of a "continuous voyage" would be destroyed; and not merely transhipped, but often passed into the customs of the neutral port, and, presently, on again to the enemy. He, we may be quite sure, was quite willing to pay the heavy extra shipping charges so long as he got the goods. The goods were contraband; they were vital to him, for they helped him to continue the war.

Doctrine applied to contraband cargo.

The neutral merchant was now "one up"; but he did not hold the lead for long. The Courts found means to track the progress of the cargo to the enemy, if such were its real destination; and the doctrine of "continuous voyage" was applied to the cargo, irrespective of the vessel's actual destination. The transactions at the neutral port soon became more and more complicated. There seem to have been regular sales contrived for the purpose of hiding the real destination of the contraband from the eagle eyes of the Prize

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Courts, sales to some merchant at the neutral port aiding and abetting the enemy. But the Courts rose to the occasion, and devised a means for testing the reality of these sales. The test was, were they intended to go into the "common stock" of that class of goods in the neutral port? If they were so intended, but only in such case they were held to be genuine neutral trade. It was rather a complicated question to unravel, but though some cargoes may have escaped condemnation many were caught.

The "common stock" principle.

The "common stock" principle is the new measure of the old formula "neutral trade is free." It was obviously being abused, and its clear meaning distorted out of all recognition; so the American Court took the opportunity in the flagrant case of *The Bermuda* of restating it:—"Neutrals may convey in neutral ships, from one neutral port to another, any goods, whether contraband of war or not, if intended for actual delivery at the port of destination, and to become part of the common stock of the country or of the port." The meaning of this is clear beyond cavilling. It intends to describe in longer form the simpler formula "honest intention"; and the deduction is clear that if—whatever may be the convolutions of the mind of either vendor or purchaser, consignor or consignee, or the involutions of the voyage to which the cargo is subjected—if there is lurking in the mind of some one an intention that the goods shall pass out of the common stock and ultimately reach the enemy, then there is an "enemy destination." The subsumption of the case now in dispute under the principle so lucidly expounded in *The Bermuda*, is, I believe, complete. It is not to be avoided by saying that the suggestion of dishonesty which this argument implies is met by the transparent honesty of the declaration of the American protest that the goods in question *are* intended to reach the enemy.

The neutral merchant's evasions.

But at this point the "common stock" principle has stopped. The neutral merchant has devised all sorts of obvious evasions. Goods might quite serenely have satisfied the "common stock" test, but they might just as serenely come out of the neutral port again, and so on to the enemy. The ingenious reader will see at once how the whole thing could be engineered. First, a contract of sale, on the face of it perfectly *bona fide*; then a simple arrangement such as this—the actual purchaser in Germany would say to the vendor in, say, New York, "You sell to X. & Co. in Rotterdam, and I will in due course, when all this question of 'common stock' has blown over, buy the goods from them." Or, he might make a still more convenient arrangement with X. & Co., and the vendor remain, also conveniently, oblivious of the whole transaction.

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West-lake's opinion as to limit of "common stock" principle.

Now it may seem incredible, but, if we are to judge by the books, these palpable evasions had not been countered before the war broke out. Westlake thus states what he conceives to be the existing principle. Goods may have passed into the common stock of a neutral country; but, he adds, "If they ultimately find their way to a belligerent port, *or to a belligerent army or navy*, it will be in consequence of a new destination given them, *and this notwithstanding that the neutral port may be a well-known market for the belligerent in question to seek supplies in, and that the goods may notoriously have been attracted to it by the existence of such a market.* The consignors of the goods to the neutral port may have had an expectation that they would reach the belligerent, but not an intention to that effect, for a person can form an intention only about his own acts, and a belligerent destination was to be impressed on the goods, if at all, by other persons. Therefore it is not contended by any one that on the way to the neutral port there will be a right of capture, whatever the character of the goods." But the reader may take comfort from the fact that it *is now* contended that there is a right of capture under the doctrine of "continuous voyage"; the right has been asserted by the British Government, with the assent of the Allies, in Art. III of the Order in Council of March 11, 1915.

Fallacies in West-lake's opinion.

The supply of contraband to the enemy being admittedly vital, it is inconceivable that the right to get it through to the enemy in these circumstances should depend on a palpable sophistry. We are gravely told that if a merchant in New York sells contraband to a Dutch merchant, well knowing that the Dutchman is going to sell it to the Germans, *he* has no "intention" that it shall go to the enemy: to be exact, *he* has not impressed on them a belligerent destination. The first fallacy is that the test of "enemy destination" is made to depend solely on the neutral vendor. If this were the law there would be a dozen ways of evading it. I have elsewhere examined the different forms of evasion, and it will be sufficient here merely to state the ultimate case, in which the "neutral" vendor in New York may be a German, and the "neutral" consignee in Holland may also be a German. Possibly in such a case the Declaration of Paris might help us, as we are dealing with contraband; but, according to the authorities, the doctrine of "continuous voyage" will not.

The second fallacy lies in the assumption that "enemy destination" is a personal question. It is essentially a question of fact, a question to be answered by the goods themselves, for the judgment of the Prize Court is *in rem*, against the goods. The question is this: Are the goods going to the enemy? If the answer is in the

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affirmative, they have an enemy destination; and however much that destination may have been "darkened and disguised," the doctrine of "continuous voyage" must apply, for the condemnation of the goods in such circumstances is the express reason why the doctrine came into existence.

Application of doctrine of "continuous voyage" to non-contraband.

But even now I have only dealt with contraband. If the books throw difficulties in the way of giving the clear meaning to the doctrine of "continuous voyage" in its relation to contraband, how much greater will be the difficulties in applying it to non-contraband as the result of the "long-distance blockade." These were some of the difficulties with which the Government was faced when it decided to exert its sea-power to the full against the enemy. But only some of them. Others arose from geographical considerations, the importance of which I have already emphasised: the existence of land frontiers, and the disappearance of sea-power from one stage of the journey of the goods from neutral vendor to the enemy. With all due deference to the multitude of home critics of the Government I do not think they have appreciated the meaning of these difficulties. I will endeavour very briefly to indicate them.

Limit of the doctrine, and necessity for agreements with neutral merchants.

It is an admitted principle that the sale of contraband by a neutral merchant to the enemy is legitimate, and that it is only with its carriage by sea that the belligerent can interfere. Further, it is also admitted that a neutral merchant may buy contraband for the use of his own Government. Combine these two principles, and apply them to one of the neutral countries contiguous to Germany. Further, assume that one of them—say, Denmark—produces some ingredients essential to the manufacture of munitions of war, and that it sells quantities of it to Germany; its carriage across the frontier cannot be interfered with. Further, suppose that it purchases a similar quantity of those materials from the United States to replace its "common stock." Frankly, I see the greatest difficulty in applying the doctrine of "continuous voyage" to such cargoes on their way to Denmark. I am conscious that we have reached the limit of its application, for, even with the widest interpretation of the words, it would be difficult to trace the "enemy destination." It seems to me that the only remedy—the obvious remedy—lies in arrangements with the traders in the neutral country who receive these goods from the United States, if they are willing to enter into them. And this, as I understand it, is what the Government has done. It must also not be forgotten that we ourselves must purchase many things from these neutral merchants; it is therefore of the utmost importance that when we act to their prejudice we must be able to justify our action by reference to clear principle.

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It would be presumptuous to go beyond this point, for the Government has declared that it would be against the interest of the State to make the actual terms of the Danish and other agreements public. That is within the right of government in peace time; it must be doubly so in time of war.

General principle laid down by Order in Council.

The further points which I think it desirable to make are sufficiently important. Looking at the question merely as one of drafting it was necessary to lay down a broad principle in Art. III of the Order in Council, which is in fact the widest possible application of the doctrine of "continuous voyage": but it appears that there are some cases of cargoes going to neutral countries from which the enemy may benefit to which it seems probable that the doctrine cannot legitimately be applied, and that these must be dealt with by administrative order limiting executive action under this article, which would in the ordinary course be communicated to the neutral Powers whose merchants would be affected thereby.

But the United States Government has not raised this point. It has endeavoured to strike at the root of what it calls our "unlawful practices," and broadly denies the application of the doctrine of "continuous voyage" to non-contraband. It endeavours further to tie us down to an old idea, and, as I think, a very fallacious one, that the doctrine does not apply to blockade. It will give us our "long-distance blockade," but it seeks to deprive us of the benefit of it.

Old fallacy that doctrine of "continuous voyage" does not apply to blockade.

This old idea was based on a complete misconception. The doctrine of "continuous voyage" in its inception referred, as the term implies, to the voyage of the vessel. It was, as explained in *The William*, a mere statement of the truth, and the destruction of the fiction as to its real destination. The principle laid down was an abstract one, and was applied to the concrete case of a vessel brought before the Prize Court for violation of the Admiralty Instructions of 1798, which prohibited neutral vessels from direct trade between the Spanish and other enemy Colonies and the Mother Countries. This vessel had sailed from La Guira and put into the neutral port of Marblehead in Massachusetts, and thence sailed for Bilbao. Sir William Grant held that her real voyage was from La Guira to Bilbao, and condemned her accordingly.

Now, if we take breach of blockade to mean, as the Declaration of London declares it to mean, that the ship is within the area of the operations of the blockading squadron, then clearly the doctrine of "continuous voyage" in its simple form finds no application to blockade. But if, in accordance with the English and American prize law, the breach of blockade lies in the intention, and the vessel may be seized for the attempt a day out from Liverpool if she sailed

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with that intention, then, as clearly, the doctrine must apply, for the same reasons that it was applied in *The William*. It was so applied on this principle by the American Prize Court in *The Bermuda*.

With regard to contraband, it is liable to seizure anywhere on the high sea if its destination is the enemy. The fact that it is primarily destined to a neutral port, even that it may be going to be transhipped there into another vessel, does not alter the fact of enemy destination in the case of the cargo any more than it does in the case of the vessel. This is the doctrine of "continuous voyage" as we know it. Article 19 of the Declaration of London laid down another principle which was generally interpreted to involve a statement that the doctrine does not apply to blockade. It assumed that it was possible for a vessel captured for breach of blockade, that is to say, to be within the area of operations of the blockading forces, and yet to be on her way to a non-blockaded port. The article was not very intelligible, but it has been abrogated by the Order in Council recently issued, and it need not be further considered.

The American cases.

I have already exceeded my allotted space; I shall, therefore, only add one word on the much-quoted, much-misunderstood American decisions—*The Bermuda*, *The Springbok*, and *The Peterhoff*. They are in no sense to be criticised; rather should they be carefully studied, for they are legitimate and logical extensions of principle, and conceived in the best and truest spirit of International Law.

F. T. Piggott.

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CHAPTER IV.

AIRCRAFT AND THE WAR.

THERE are certain difficulties in writing during war time on questions relating to attack and defence in the air. Obviously one cannot divulge any confidential information relating to our own naval air service or to any special progress we have made, and obviously, also, there is the same limitation concerning the enemy Powers, because they, too, do not make public anything concerning their air services. Yet the subject is so highly important, and obviously a question of the day, that it could not be neglected in the *Naval Annual*, for the Navy has an important Air Service of its own, which, according to the First Lord, has increased tenfold since August, 1914. That was a very modest statement, greatly underestimating the progress that has really been made. I do not propose in this chapter, which I have been asked to write, to attempt to give any instructions for the guidance of airmen in the practice of their adventurous and inspiring duties. Neither, for the reasons given above, do I intend to make an effort to record progress in any detail. Some information on these subjects will be found in books recently published. A narrative of what has been accomplished by our naval airmen is also outside my purpose.* Experience gives confidence, progress is steady, and the Royal Naval Air Service has very much of which it may feel proud. All that it asks is freedom to exert its full offensive power in a manner consonant with the spirit of the sea.

Growing needs of the Air Service.

My first purpose shall be to endeavour to estimate the position of the Air Service in regard to strategy, and chiefly to naval operations, and then to deal at some length with the uses, misuses, and limitations of airships, and to say something about aeroplanes. In the matter of navigating the air we no longer stand where we did, and next year we shall not stand where we stand now. Supremacy in means and experience is very important to us, and, still more, far-seeing and constructive policy. Activity in the air is not merely a by-product of naval and military activity generally. The best brains must be devoted to its development. The most active spirits must be employed in it. The future is one of enormously expanding possibilities, and the question of air control can never be lost sight of. It must be regarded from the standpoint of a level-headed

* But *see* Chapter I, pp. 16–18, 38.—*Ed.*

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comprehension of it. There must be full understanding, but no exaggeration, and things must be seen in their due proportions and right perspective.

Proposed "Minister of the Air."

A movement was set on foot for the creation of a distinct air service, with a responsible Minister as its chief—a Minister of the Air, directing and controlling a department which would have no direct or organic relation either to the Navy or the Army, but would act independently or endeavour to serve both. This Air Minister would stand on an equal footing with the First Lord of the Admiralty and the Secretary of State for War, though possibly he might not be a Cabinet Minister. The movement gathered new force from the Zeppelin raid on the Midlands on January 31st, and again from the coast raid of March 5th. We were told by the leading organ of opinion in the country that the "mastery of the air" was "a matter of life and death to an island Power." In a very short time it would be "as essential to us as command of the seas," which in the past "rendered the heart of the Empire absolutely safe." "Already it is no longer safe from insult; in the near future it will not be safe from serious attack, however complete our control of the seas may be." Moreover, although "aeronautics are still in their infancy, they promise to revolutionise the whole system of island defence, as already they have profoundly modified strategy both by land and sea."

Strategy of the air.

There are some competent authorities whose words carry weight with the people, who believe they foresee the time when the Air Service will be more important than the Navy or the Army. But when one assumes the garb of the seer and enters upon the domain of the prophet, there may be danger of losing touch with reality, and it is submitted that, in the light of present knowledge and instant practice, views such as these disturb the air question in its relation to other problems and duties of attack and defence, besides tending to the adoption of a distorted conception of strategy. The very great importance of what is called "mastery of the air," the supremacy we must attain and keep, is palpable, and will not be questioned by anyone, least of all the writer of these notes. But the position is not now, and perhaps never will be what is described. Let the great gravity of the subject be recognised and its growing importance with the advance of science, and, above all, let us have a right air policy, inspired with the spirit of the sea and of the offensive in war. But there is nothing as yet to suggest that "command of the air" can ever be as essential to us as command of the sea, still less that it can be asserted in the same way. Command of the sea is our island defence against invasion, the safeguard of the communications of the

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Empire, and the protection of floating commerce. "Command of the air" has no relation to any of these things. No one suggests that in the hands of an enemy this "command" would enable him to invade us, break up our communications, or destroy our commerce.

What is "command of the air"?

"Command of the air" must therefore be something essentially different from command of the sea. We may question whether there really can effectively be such a command. There are no geographical boundaries to motion through the air, no straits, channels or narrow seas by which it is confined. What is "command of the air"? Can the air ever be so commanded—as the sea is commanded—that enemy aircraft can never fly at all? Can we ever forbid an airship from flying on a still, dark night and dropping bombs ere the dawn? Something of command might be gained if we could destroy all the enemy's airships in their sheds, but who can say that aeroplanes, starting from a hundred centres, may not yet be able to cross the sea? Can aircraft ever prevent armies from going afloat, as command of the sea does, or ever sweep the enemy's commerce from the seas? These questions answer themselves. Is it not the fact that we have probably discovered a new force which can neither be asserted nor resisted as attacks by land and sea are? It is not true to say that aeronautics have profoundly modified strategy by sea and land. Strategy is changeless in its principles, though, by extending the range of observation and report, concentrations and movements may be detected and checked. This is probably more true of military campaigns than of naval operations. As to naval tactics they seem not to be affected, though undoubtedly airships working with a fleet, in favourable weather, may yet enable the enemy's formations to be discovered, and reduce his chances of gaining special advantage by concentration. The Germans are well equipped with scouting airships, and our Fleet must not be left at a disadvantage.

Arguments concerning an Air Minister.

Concerning these arguments, as related to the plea for the creation of an Air Minister, the mover of the Address in the House of Commons, at the opening of Parliament, said "he would like to see transferred to the new Air Minister all the powers of the Army Council and of the Board of Admiralty with regard to the air services." Lord Montagu, in the House of Lords, having the same or similar views, was not quite so precipitate. *The Times* argued in the same way for "the evolution for the present naval and military air-corps of a single new Department of the fighting services," and the "creation of a Minister to control the new Department, since nothing less will ensure it the necessary status and backing." Others joined in this advocacy. Those who know anything about naval and military history, and the plentiful array which it presents

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of squabbles between the two services, and of grave misunderstandings too—which latter found expression in the present war also in the high direction of the operations against the Dardanelles—viewed not without apprehension the proposed institution of a third distinct fighting service. To the Navy aircraft are chiefly useful for scouting and observation purposes, and are really cruisers of a new type. They are a very valuable auxiliary. They are also capable of destructive work, adding a weapon, but otherwise changing little. If there existed a separate Air Department possessing aircraft, the Navy would still require its own air department, and aircraft of its own. The First Lord strongly enforced this point in introducing the Navy Estimates.

"Airy navies."

It seems to be contemplated by some people that we shall yet see great fleets of aircraft crossing seas and lands to make attacks, being met presumably by like fleets, so that the poet's vision might be realised of "the nations' airy navies grappling in the central blue." So far as home defence is concerned, we do not think of opposing airship to airship, preferring the gun and hornet attack; and, for the purely defensive, guns and hornets must be placed directly under the chief military command in the United Kingdom. But it has been suggested that the direction of large operations, mainly of an offensive order, does not properly belong either to naval or military authorities, but demands an air authority of its own. The question was asked: What were the duties of the Director of the Air Department at the Admiralty? Could he not make the Admiralty know what the Naval Air Service was and what it could do? If long-range operations were to be undertaken, they must be undertaken in accordance with the strategy adopted by the Cabinet or War Council, in conference with the naval and military authorities, and a commander could be appointed to direct each expedition, the aircraft being provided by one or both services as might be agreed. This might be the case, for example, if an important raid were contemplated on the air stations or great centres of military supplies of the enemy.

Joint committee or board.

A solution of the difficulty appeared to have been arrived at by the constitution of a standing Joint Committee of naval and military officers and experts, their function being to co-ordinate the naval and military services and questions of supply and design of material for their use. This committee had an important office, though it goes without saying that aircraft must be built according to professional judgment for naval and military purposes, and not according to the ideas of a mere technical and administrative committee. There is now at the Admiralty a Superintendent of Aircraft Construction.

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The Joint Committee had the defect that it had no power—or very little power—of initiative, and very good reasons were advanced for transforming it into an Aviation Board. Lord Sydenham suggested the analogy of the former Board of Ordnance. Such is the situation at the time of writing. If a further step be taken, and a Minister of the Air appointed, the very first necessity will be to establish and define his relationship to the naval and military services. There is a strong body of opinion that an Aviation Board would be preferable to the proposed Ministry, charged to organise an entirely new service. What is now wanted is an agency for the supply of *matériel*. An independent Minister may yet be required, but there can be no severance of the Naval Air Service from the Navy itself.

Airships and the Navy.

Having said so much about the important question of organisation, let us turn to the consideration of airships as an arm of the Navy. It has been understood that these are fair-weather craft, but evidently they are gaining in their power to resist the elements. Their value must primarily be for scouting, and undoubtedly airships cruising over the North Sea, the Channel, or elsewhere, possessing good speed and carrying wireless, have a wide range of vision and usefulness. In good conditions they may be more useful than cruisers, but they will never displace cruising craft navigating the water, because the latter can keep the sea when bad weather would keep the airships at home. For scouting purposes aeroplanes can accomplish some of the useful work of airships, and fly in a wind that would be dangerous or impossible for the lighter-than-air craft; but the latter certainly have the advantage that they can remain for longer periods in the air, and undertake more distant enterprises. The Germans do not build all their Zeppelins for destructive service. Many of them are employed in patrol duties, and some of these, as is known, over the North Sea.

Destructive airships.

That airships can inflict damage by dropping heavy explosive and incendiary bombs we know. They can kill and maim men, women and children, and wreck houses and other property. This practice is associated with the enemy's Zeppelins—for Zeppelins are usually, though they have not always been, employed on this questionable service. To bring an airship over London or other large centre, or indeed over any place that is not specifically a fortress or a headquarters of warships or troops, or a munition centre, is contrary to the ethics of war as we understand them; but we must take our enemy as we find him, and ethical discussions, and the right or wrong of reprisals, are questions outside the subject of this chapter.

The great objects of the designer of an airship, be she a rigid

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Zeppelin, a semi-rigid Schütte-Lanz, a Parseval, or any other, is to provide for sufficient engine-power, representing range, speed and ability to fly in a wind, and sufficient "useful load," representing the crew, guns, explosives, petrol and other stores carried. Descriptions of Zeppelins and other foreign airships have been so often published that nothing of the kind shall be written here. An airship, like any other ship, is a compromise of qualities, and every ounce of unnecessary weight must be spared. The Zeppelins we knew before the war had aluminium girder framing for strength, and engines of over 500 horse-power, giving a maximum speed of about 50 miles per hour, their "useful load" being some 14,000 lb. If 2000 lb. were allowed for the crew, and 1300 lb. for ballast and stores, it was calculated that there remained lifting power for fuel equivalent to a range of about 1450 miles at full power, or 2100 miles at half power. Armament of two 1-pdr. automatics and four maxims would reduce this range by a sixth, and it would be reduced further by the weight of explosives carried. Everything depends on the objects for which the airship is built, the explosives she is to carry, the distances she is to travel, the ballast she must be provided with, and the time it is necessary for her to remain in the air. Count Zeppelin is reported to have stated that bombs have been dropped as ballast in England without fuses, so that they did not burst. A gun and parts of machinery were jettisoned by one of the raiders of March 31st.

Airship construction.

It may be supposed that the useful load has been increased in the new so-called super-Zeppelins, but this cannot be the case to any considerable extent, except when they are employed on work at comparatively short range. Although Zeppelins have not yet been attacked by the "swarm of hornets" which was to fall upon them, designers have had to take account of the possibility of something of the kind happening. The achievement of the late Flight Sub-Lieut. Warneford in destroying a Zeppelin, by dropping bombs upon it, has enforced the danger, and accordingly heavier armament is being given to the new types, which, according to the *Kölnische Zeitung*, carry two small guns and machine-guns, and have special apparatus for throwing bombs and aerial torpedoes, and they carry wireless, smoke-producing apparatus, searchlights and arrangements for mounting guns on the upper surface of the Zeppelin. There are dangers in this practice, however, owing to the escape of gas, which is always going on. The Zeppelin brought down at Révigny seems to have carried only machine-guns. The gondolas are said to be steel-plated. There are larger planes and rudders to give that rapid upward thrust, which is so necessary when aeroplanes are in pursuit.

All this offensive, defensive, and manœuvring equipment and a

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doubling of the crew mean added weight, which means greater engine power and larger propellers, which, again, mean added weight.

Character of recent Zeppelins.

Therefore the useful load and bomb-dropping capacity of a Zeppelin—said to be about a ton—do not increase proportionately with the increased defensive, offensive, navigating and other qualities of the airship herself. To add to the latter has apparently been thought more important than to increase the former, though the Révigny Zeppelin, employed on short service, carried about a ton and a half of explosives. Lord Montagu said, in the House of Lords, that there now exist, or will soon exist, Zeppelins having a range of 2000 miles and an emergency speed of 70 miles, capable of dropping explosive and incendiary bombs "by the ton"; but this statement was apparently based on anticipation rather than knowledge.

In order to illustrate the conditions which attend the operations of airships generally, and specifically as used by the Germans to attack this country, some of the considerations which present themselves to the commander may be set forth. They group themselves mainly under the headings of (1) possible attack from enemies by aeroplane and gun; (2) dangers from the elements; (3) conditions of navigation; and (4) conditions for operations. The destroying Zeppelin, by the very nature of her operations, must shun the light and seek the darkness. Her commander must stealthily appear and stealthily vanish. Zeppelin attack by daylight, except where there has been no known defence, has not been on record since the first month of the war. In that month, indeed, the Germans made daylight attacks on fortresses, camps, and cities, and participated in military engagements, but the practice was highly dangerous, and has been abandoned. In the attack on the Midlands some of the Zeppelins certainly did arrive off the coast before daylight had disappeared, in order to get their bearings, but doubtless it was known that in that region we were unprepared. One or more of them showed the same boldness on March 5th.

Gun attack on airships.

To be discovered on a bomb-dropping expedition is, however, to run the peril of attack by guns or aeroplanes. Practical immunity from injury in the Zeppelin attacks on London and the Midlands does not promise the airship commander security on another occasion. The raid of March 31st showed how little security he enjoys. He knows now what our searchlights can do, and that the anti-aircraft guns of London and of many parts of the coast and other places are infinitely more formidable than they were. He has tasted their quality. L Z 15 was discovered and hit three times before she reached the coast. She fell into the sea off the mouth of the Thames as the result of most excellent gun-fire. Guns are the dread of any

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Zeppelin captain. They promise destruction to his craft, or compel him to ascend to such a height that he can have no chance of hitting any specific objective. Lord Kitchener said, in the House of Lords, in February, that there had been several cases in which we had so disabled the enemy's airships as to bring them to the ground or render them useless for further service. Mr. F. F. Morgan, of the Anti-Aircraft Corps, was thanked by the Admiralty for a well-aimed shot which crippled a Zeppelin, whereby she was afterwards destroyed off Ostend. L Z 77 was brought down from a height of nearly 6000 ft. and utterly destroyed, with all her people, at the third shot, by a motor anti-aircraft gun near Révigny, flaming like a torch. Motor searchlights were employed to keep her under observation. Incidentally it may be remarked that the belief that the hydrogen-charged ballonnets inside the Zeppelin could not be set alight by reason of the interspace being filled with non-flammable gas, appeared to be disposed of by this incident. It appears, however, that incendiary shells were employed. On the other hand, when Flight-Commander Bigsworth pursued a Zeppelin on May 17, 1915, the bombs he dropped on her did not cause her to blow up. Possibly in the future both explosive and incendiary bombs will be used.*

Bomb-dropping on airships.

The Zeppelin commander has to contemplate the possibility of being attacked by the explosive or incendiary bombs or the quick-firers of aeroplanes, which is another reason for his coming at night, when he knows these aircraft are heavily handicapped. There are difficulties in their attack, but types are improving, and even existing machines are formidable enemies of Zeppelins, for some of them can move horizontally at nearly twice the speed of the airship, and even rise 700 or 800 ft. in a minute, which is probably more than the airship can do. One of the raiders of March 31st was attacked by Lieut. Brandon, R.F.C., who at 9000 feet secured the superior position and dropped bombs on her, and a little later repeated the operation.

These dangers cause the Zeppelin commander to like best the

* In *The Times* (March 25th), M. Georges Prade gave a description of the Zeppelin brought down at Révigny, from which the following details are taken: Dimensions, 1912 type, 688,000 cubic feet; 1913, 775,000 cubic feet; 1914, 953,000 cubic feet; 1915, 1,060,000 cubic feet (which might give a total lift of about 33 tons); length (1915 type), about 524 feet; two gondola cars for motors and mechanics, communicating by a central cabin provided for pilots, gunners, and bomb and wireless operators; central ladder to upper platform between two of the 20 independent ballonnets, separated by partitions; 5 Maybach 180–200 horse-power motors, with 6 vertical cylinders, water-cooled; consumption about 2·5 kg. (5·5 lb.) of oil per hour and per motor; 5 propellers, one placed behind the stern car for increased horizontal and ascensional speed; crew of 23; nearly 1½ tons of bombs (weights 110·2 lb., 176·4 lb., and 220·5 lb.) each in an electrically-released hooked bomb-carrier; six machine guns. It has been said that recent Zeppelins have means of keeping, under compression, excess of volume of gas due to decreased atmospheric pressure, but M. Prade's description gives no confirmation of this statement.

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Zeppelins shun the light.

long and the moonless nights. Even so, he risks being discovered by the watcher at some microphone listening-post. Brilliant starlight nights are not specially favourable to him. His ship obscures the stars as she passes in front of them, and she is soon discovered and followed by searchlights. In the marvellously favourable weather of March 31st, April 1st–2nd this actually happened. The moon lights up the Zeppelin better than a searchlight, and almost as well as the sun. Her commander takes account of the age of the moon and the hours at which it rises and sets. A half-moon that sets as he nears the coast may be no impediment to his activity. Preferably the long nights of winter would be chosen for distant operations, were it not that in that season of the year other conditions are often very adverse. Records of Zeppelin raids show that the period chosen is usually between the last quarter of the moon and the first quarter of the next moon, though pilots will sometimes run risks. The attack on Southend was made on May 26, 1915, two days before the full moon, but with the sky overcast, and that on Outer London on May 30th, two days after the full moon. Those attacks were in the early days, when hardly any defence existed. There was a trivial hit-and-run attack on Ipswich on April 30, 1915, just after the full moon, but the moon was setting and low in the sky at the time. The risks run in these affairs were inconsiderable, because at that time our defences were rudimentary. After the attack of October 13th the Zeppelins became much more wary. Often within three or four days after the new moon the sky is so well illuminated that there is great likelihood of an airship being discovered immediately. Probably the maximum period of reasonable safety, where there is any defence, is fourteen days in each month.

The weather and the airship.

Bad weather is the chief enemy of airships of any class—weather and the elements. From the first Zeppelin onward until the most recent dirigibles of the class the record has been marked by a succession of disasters. Zeppelin No. 2 was destroyed in a storm at Kissleg on the occasion of her second flight, in January, 1906; No. 4 perished in bad weather at Echterdingen in August, 1908; No. 5, being the Army airship Z 2, was destroyed at Weilburg in April, 1910; No. 6, a passenger vessel, was burned at Oos in September, 1910; No. 7, which was the passenger vessel Deutschland, was destroyed by a bad landing in the Teutoburger Wald earlier in the same year; and No. 8, built to replace her, was so damaged in coming out of her hangar at Düsseldorf, after making three flights, that she had to be dismantled, and exists no more. The first naval Zeppelin (L 1) was destroyed by storm in the North Sea, October 7, 1912, being seized by a sudden upward current, carried to a great height and

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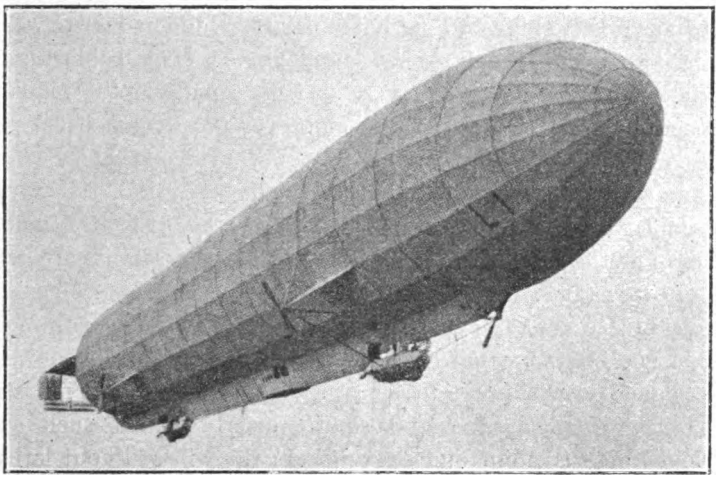
there soaked with rain, and then plunged like a stone into the sea. The second naval Zeppelin, by an indraught of inflammable gases, was set on fire in mid-air and fell in a mass of flames and wreckage, every soul on board being killed, at Johannisthal, September 20, 1913. Since the outbreak of war L 7, L 9, L 15, L 19, and another have been



THE FIRST GERMAN NAVAL ZEPPELIN.
Lost at sea, October 7, 1912.

lost in the North Sea, and L 3 at Fanö (Denmark). L 8 was destroyed in a bad landing near Tirlemont, and one was wrecked in a storm off Pola. Another perished near Verdun. Other classes of

THE SECOND GERMAN NAVAL ZEPPELIN.
Destroyed at Johannisthal, September 20, 1913, showing the new lines of construction.

airships have not escaped disaster. The Army airship M 3, of the semi-rigid Gross-Basenach type, exploded and was burned after manœuvres. The non-rigid airship P L 5, a vessel of the Rheinisch-Westfälische Company, and a third named Ruthenberg, were destroyed

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by fire, &c., in 1910. Schütte-Lanz No. 1 was destroyed by storm in July, 1913. After hostilities began a Parseval or Gross-Basenach was wrecked by storm and blown over Holland to German territory, in November, 1914; a Schütte-Lanz was abandoned by part of her crew in Jutland, and blown out to sea, in February, 1915; and a Parseval was blown into woods in Belgium by storm and destroyed in the following May. This is a long list of disasters, due mainly to weather, but it does not pretend to be complete. It is probable that the Germans have now over forty Zeppelins, some adapted mainly for destructive work, but most of them employed in patrol and observation duties.

Wind and the airship.

Having these disasters and others in his mind, the Zeppelin commander must choose some dark night in which the atmosphere is still or in motion with light winds only, if he can. Flights are usually made in such times of light airs and slight and moderate breezes, but a strong breeze was reported when Southend was attacked, on May 10, 1915. The raider on that occasion was in a hurry, and made a poor performance in his haste to be gone. Periods of cyclonic storms from the westward, rain and south-westerly winds, such as are frequent in the autumn and prevalent in the winter in our latitudes, veering often to the north-west, must be avoided. To ascend in these would be perilous. Periods of secondary disturbances are also dangerous. Anti-cyclonic conditions must be sought, promising favourable weather and presenting the best opportunities, if other conditions are favourable. Foggy weather is unfavourable, because, though the Zeppelin may rise above the dense air, intended landfalls and landmarks will be concealed, and opportunities of effective work destroyed, and the return made puzzling and uncertain. Precipitation of moisture, of whatever nature, is dreaded by the Zeppelin commander. The covering is no longer absorbent, like that of the first naval Zeppelin, being treated with rubber and coated with aluminium paint or other impervious material. Even the whole surface of the airship being wet adds to its weight, and the beating of heavy rain on the surface has a tendency to weigh it downward.

Effects of precipitation.

A heavy thunderstorm might cause a disaster. In the winter, at great altitudes, where the thermometer is very low, there is danger from freezing in the tanks, and if there is precipitation of frost on the surface of the airship to the thickness even of a sixteenth of an inch, it may be necessary to throw overboard bombs and other material to prevent the airship from being driven downward. In a storm of clinging sleet or snow disaster would be unavoidable, unless, as may have been the case in the coast raid of March 5th, the Zeppelins are able to rise above the snow clouds into clear atmosphere.

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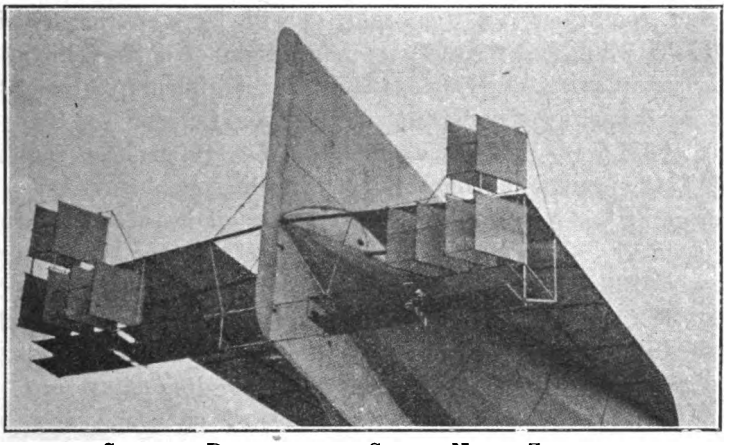
Going at high speed they might not gather much dry snow, except on the bows. Bombs were dropped indiscriminately in the raid referred to, and the War Office surmised that the Zeppelins were uncertain of their whereabouts, and in dread of the weather, which is



STEERING PLANES OF THE SECOND NAVAL ZEPPELIN.

highly probable. It has been estimated that a layer of snow 2 in. thick on the upper quarters of a Zeppelin would weigh 2000 lb., and, fearing this downward pressure would consume their reserve buoyancy, the Zeppelin officers seem to have dropped their bombs at

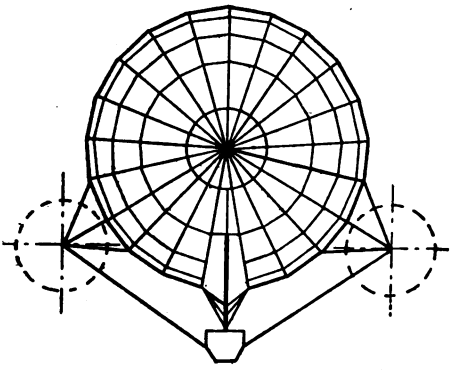


DIAGRAM OF ZEPPELIN TYPE—BOW VIEW.

The new Zeppelins have a screw amidships, towards the stern.

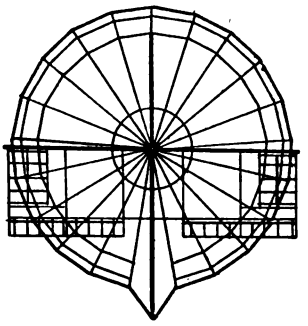


DIAGRAM OF ZEPPELIN TYPE—STERN VIEW.

Many experiments have been made with types of steering-planes.

random, to escape risk, and returned at their best speed. Periods of high and steady barometer are the most suited to airships, promising absence of rain or snow, though in winter frost; but low barometer periods do not always produce rain or snow. In the raid of March 31st, the night was dark and the barometer high.

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Conditions could not have been more favourable, yet gun-fire brought one of the raiders down. The Germans are well aware of the great importance of weather conditions, and the *Seewarte* at Hamburg, the meteorological station near Brussels, and other stations on the coast are engaged in preparing forecasts.

Fuel requirements.

But from what has been said, it will be seen that specially favourable conditions for the long-range flight of a Zeppelin do not often prevail at the same time, and it is not difficult to understand why no Zeppelins visited England between October 13, 1915, and January 31, 1916. After the exploit to the Midlands on the latter date, L 19, presumably one of the Zeppelins employed in it, was wrecked in the North Sea with all hands on board. The weather had suddenly changed for the worse. After the Midlands raid supervened a period of storms, high winds, heavy snow, sleet and rain. There are other considerations relating to the weather which the airship commander must take account of. He must contemplate the possibility of injury to his ship impeding his return. He must not return home with fuel exhausted or nearly exhausted. Conceivably he may find the weather on his return such that he cannot descend with his airship to her shed. He may have to keep aloft for days, it being perilous to descend in the open and anchor. There is the risk of making a bad landing. The German Army airship Schütte-Lanz No. 1, on July 17, 1913, on a journey from Königsberg to Berlin, grounded at Schneidemühl and anchored, but a storm dragged her from her anchors and she perished. To navigate into a shed a structure some 520 ft. long and nearly 60 ft. wide is no easy matter, even if the wind be favourable, and if unfavourable the operation may be impossible. Reference has been made above to the destruction of L Z 8 from injuries received in issuing from her hangar. From these facts it will be seen that the prudent Zeppelin commander will keep ample fuel in hand, and therefore carry with him on his distant cruise much more than the specific object of the expedition would require.

Airship navigation.

The actual navigation of an airship is not like that either of a sailing or a steam vessel. She flies low when it is safe to do so. She is subject to wind, but depends almost entirely on propelling power. She cannot tack to windward by using steering planes, because as she tacked she would present her bow or broadside to the wind. If, for example, desiring to go due west with the wind in the south-east, she ran before the wind to the north-west, to a certain point, with engines stopped or going slow, she would have, in order to reach her object, to alter her course to the south-west, and thus would bring the wind on her broadside, which is the most

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disadvantageous position for an airship. These considerations do not arise in periods of light airs and slight breezes. The course is usually set direct for the object, and the easiest navigation is undoubtedly with a following wind, but otherwise probably a wind from right ahead may be the most advantageous. Airships have, it is true, a certain tendency to yaw, and may be driven off their course, but if this can be overcome the course is straight for the object. Recent high-powered Zeppelins can navigate in any wind that does not exceed 18 miles an hour. Experience teaches a great deal, and German officers who have several times crossed the North Sea, and journeyed over land, must have picked up many wrinkles. Evidently they have become proficient in handling their Zeppelins. Dr. Robert Emden and Dr. Rotzoll, of Bitterfeld, have prepared tables, and the *Taschenbuch der Luftflotten* gives elaborate formulæ and graphic tables of atmospheric, wind, and gas pressures for their guidance. An airship is unlike a steamship, because, though having propelling engines, she is still greatly subject to the influence of wind.

With regard to the limit of safety, in the case of German airships it is not definitely known. Much depends on their engine-power, and the ability of the structure to stand strain. In the later Zeppelins great efforts have been made to provide these requirements, whereby Zeppelins may fly in conditions which originally made flying impossible. The engines of early Zeppelins were of 450 horse-power; engines of 960 horse-power were being installed in the Schütte-Lanz airship which was building for the German Navy in 1913–14.

Navigation difficulties.

Probably the navigation of a Zeppelin is not easy in a moderate breeze of 13 to 18 miles an hour, and beyond that the airship may become unhandy or unmanageable, or have to drift before the wind, controlling her course as much as may be possible. A common difficulty in navigation over the sea is the impossibility of knowing what amount of leeway is made. Experience and dead-reckoning may help, but it must be difficult to make the desired landfall, especially as the approach is made at night. Sometimes coast lights may reveal the position, but airship officers are often deceived. From the imaginary reports of damage alleged to have been done in the raid on the Midlands on January 31st, it is evident that the German officers thought they were much further north than was really the case. They are nearly always deceived in their dropping of bombs. Driven by guns, as in the raid on London on October 13, 1915, to a height of 9000 or 10,000 ft., and dropping their missiles in the dark, over a dark city, the bombs passing through various strata of air, and their fall being deflected from uncertain causes, the work was one of

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pure hazard. Lively imagination emboldened the officers to say they had damaged certain objects or places of military importance, which probably they had been instructed to try to damage, while in fact their bombs dropped otherwhere, merely hitting something by chance in the immense target presented by London. The same feature was observed in the raid of March 31st. Plentiful damage was alleged to have been done in London, which was not touched at all. Undoubtedly the darkening of the places that may be attacked is a successful means of deceiving airships as to their whereabouts. Coast lights are an excellent indication, and a river course may often be a good guide to the pilot of an airship over land.

Airships for the British Navy.

A German news agency, said to be controlled by the military authorities, stated, after the Midland raid, that we could do nothing with our rigid airships against an attack by Zeppelins. This was true, because we have never contemplated despatching one airship against another. There is no reason to suppose that one Zeppelin can fight another successfully, any more than one submarine can fight another submarine. We favour the idea of aeroplane attack on airships. We are building airships nevertheless. Mr. Balfour, First Lord of the Admiralty, said in the House of Commons, on February 16th, that he was sorry we had not developed for the Navy lighter-than-air craft of the Zeppelin type eight or ten years ago, not so much for purposes of aggression as for those of maritime and air-scout duties. We possess one rigid airship, as Dr. Macnamara announced in the House of Commons, and some of other classes, which are of great value; but it must be recognised that such vessels, notwithstanding advances in construction, and increased engine-power, are still in a large measure fair-weather craft.

From what has been said above some idea of the conditions of navigation may be formed. *Mutatis mutandis*, what applies to Zeppelins crossing the North Sea applies to rigid or strongly-built airships in other situations, and to British or Allied airships as much as to German Zeppelins. It is only necessary to suggest that a semi-rigid or non-rigid airship does not possess the stability or driving power in a wind which is characteristic of the modern rigid type. The Navy welcomes the prospect of possessing a number of airships of enduring qualities, capable of driving through the air and keeping aloft in breezy weather. They are invaluable as scouts, though they may not displace the cruisers and other scouting vessels of the Fleet. They may enable an admiral to direct with greater certainty the formation of his approach to an enemy, much as the kite-balloon may enable a gunnery officer better to direct the aim of his guns.

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Here it may be useful to give a list of the airship raids which have been made on this country*:—

Date.	Place.	Wind.	Velocity, miles per hour.	Sky.	State of Moon.
1915.					
Jan. 19	Yarmouth ..... Sheringham ... King's Lynn ...	Light air, S.W.	1 to 3	Overcast; rain, mist	Four days aft. new.
Apr. 14	Tyneside.....	Slight breeze, S.E. ...	4 to 7	Overcast; mist	New.
,, 15	Lowestoft ..... East Coast	,, ,, S.W. ...	4 to 7	Three-parts clouded	One day after new.
,, 30	Ipswich ..... Bury St. Edm'ds	,, ,, N.E. ...	4 to 7	Blue; rain	One day after full; very low in sky.
May 10	Southend	Strong breeze, N.N.E.	25 to 31	Blue	Four days bef. new.
,, 16	Ramsgate	Light air, S.S.W.	1 to 3	,, ...	Two days after new.
,, 26	Southend	Strong breeze, N.	25 to 31	Overcast	Two days bef. full.
,, 30	Outer London	Light air, N.	1 to 3	Blue	Two days after full.
June 4	E. & S.E. Coast	Slight breeze, E.S.E. .	4 to 7	Clouded; mist	Last quarter.
,, 6	East Coast	Moderate breeze, S.E.	13 to 18	Blue	Two days aft. last qr.
,, 15	N.E. Coast ...	Slight breeze, N.E. ...	4 to 7	Half-clouded	Three days aft. new.
Aug. 9	East Coast.....	Light air, E.	1 to 3	Overcast	One day before new.
,, 12	,, ,, ...	,, ,, N.	1 to 3	Overcast; mist, rain	Two days after new.
,, 17	East'n Counties	Slight breeze, N.E. ...	4 to 7	Three-parts clouded	One day bef. first qr.
Sept. 7	,, ,,	Light air, S.S.W.	1 to 3	Half-clouded	Two days bef. new.
,, 8	,, ,, & London	Slight breeze, E.S.E. .	4 to 7	Three-parts clouded	One day before new.
,, 11	East Coast.....	Mod. breeze, E.S.E. ..	13 to 18	Blue	Two days after new.
,, 12	,, ,, ...	Gentle breeze, S.	8 to 12	,, ...	Three days aft. new.
Oct. 13	London & Eastern Counties	Light air, S.E.	1 to 3	,, ...	Two days before first quarter.
1916.					
Jan. 31	Coast & Midland Counties	,, ,, S.S.W.	1 to 3	Fog.....	Three days after last quarter.
Mar. 5	Yorks., Lincs., Rutland, Huntingdonshire, Cambridgeshire, Norfolk, Essex, Kent	Moderate breeze, N.	13 to 18	Half-clouded; snow squalls	Day after new.
,, 31	N. & N.E. Coast	Light air, variable.....	1 to 3	Little cloud but dull	Two days bef. new.
Apr. 1	N.E. Coast	,, ,, ...	1 to 3	Clear	One day bef. new.
,, 2	Scottish & N. & S. Coasts...	,, ,, ...	1 to 3	,, ...	New moon.

It should be observed that this table includes both inconsiderable coast raids, which any bold or rash pilot might have attempted on the days on which they took place, and others of a more serious order. The mere state of the moon is no real guide to its illumination. Thus, in the raid on the night of May 30th, the moon did not rise until 10.44 p.m. On June 6th the waning moon rose after the Zeppelins had disappeared; on September 11th the young moon set at 6.39 p.m.; and on October 13th the waning moon could have been of no service to the defence. In the table the wind velocities are according to the Beaufort notation. The great majority of the raids took place at or about new moon and in the first and last quarters of the moon.

Lighter-than-air craft.

The Army handed over to the Navy all that concerned lighter-than-air craft, but each of the fighting services possesses heavier-than-air craft. We will now turn attention to the latter. The subject is very great and important, but it must be treated briefly

* This table is taken from the *Daily Chronicle*, with some amplification.

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here, and there shall be no attempt to touch upon aeroplanes as employed by the Army. It was necessary that the Navy should have an Air Service of its own. The Navy airman's duties differ in many respects from those of the Army airman. The latter does not use a seaplane, and has not to master the difficulty of rising from a rough sea, or of hoisting seaplanes on board ship and stowing them; but he undertakes the enormously difficult task of flying over the enemy's lines and discovering what is behind them, estimating forces and discovering movements of troops, often in perilous circumstances. Navy airmen have flown over land, too, to attack the enemy's bases, and may do so again, but ordinarily their work is that of observation, and they must have a seaman's eyes for every class of warship, friendly and enemy, and for all classes of shipping; and they keep a sharp look-out for submarines afloat or submerged. When the need for rapid development was recognised, the Navy, in the words of the First Lord, "threw themselves into their task from their own point of view, and with their own objects, and to the immense advantage, in the end, both of the Navy and the Army."

Seaplanes of the Navy.

Before the war the naval seaplane service was represented by Short, H. Farman and Sopwith biplanes, and some twenty of these made a wonderful display before the King at the memorable departure of the Fleet from Spithead, following the great mobilisation, on July 20, 1914. Machines were built of 63 ft. span, driven by 200 horse-power radial cylinder engines, and fitted with two Canadian canoe-shaped floats. The war gave a great impetus, and naval airmen have been aloft almost continuously on patrol and observation service in the various theatres of war. No catalogue of achievements can be made, and it is only necessary to refer to the fearless bravery of naval pilots in the attacks at Cologne, Düsseldorf, Emden, Cuxhaven, Töndern, Friedrichshafen, Zeebrugge, Blankenberghe and Ostend, in which the true offensive spirit of the Navy was displayed. The gallant action of Flight Sub-Lieutenant Warneford in destroying a Zeppelin in flight has been referred to, but it is worth while to recall that by the violence of the explosion he was hurled upside down, and although not a freak flyer, was able to right his machine and make a safe landing. Trick flying is not without its uses. It gives confidence in difficult situations, and helps to endow the naval pilot with a valuable quality of individual ascendency.

Classes of naval aeroplanes.

Aeroplanes for naval purposes may be divided broadly into two groups—those primarily intended for observation, and those primarily designed for attack. The first group may be further divided into aircraft for patrol work, having engines of about 350 horse-power, or duplicate power, which is valuable in night flying, and aircraft for

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distant scouting, with larger fuel capacity, and carrying wireless of considerable range. The attacking aircraft may also be classed as those adapted for bomb-dropping, also having a gun equipment, and those of what have been called the "battle-plane" type, which should possess considerable engine and fighting power, but have not yet come into their own. Some months ago Ministers let it be known that the authorities had given encouragement to the production of big multiple-engine types of great power, which have not been described. There cannot be one type of machine for all purposes. The machine must be designed for its object, and all questions of load and equipment be taken into account. With these questions engine-power must be considered, and all requirements must be balanced with a right knowledge of aerodynamics, and trained engineering skill in construction.

Engine-power and armament.

It may be predicted that, other things being equal, the long-range machine cannot be as powerful as the short-range plane, of which the German Fokker is a type. Developments are now in the direction largely of higher engine-power. The observation seaplane preceded the attacking plane, which latter is now chiefly occupying attention. In the naval service considerable developments in engine-power and lifting-power are required owing to the heavier character of the machines employed, and the provision of quick-firing and bomb armament for the attack of Zeppelins or other aircraft enters largely into the question. The urgent need is for greater engine-power.

M. Louis Blériot thinks that Zeppelin attacks are to be met by producing a new light and fast type of one-seater plane. He is not prejudiced in favour of his own type, but believes that the biplane may offer superiority, particularly for landing. It is incorrect to assume that aeroplanes cannot rise as high as airships, the contrary being the case, since aeroplanes are perfectly navigable at a height of 5000 or 6000 yards. The new type M. Blériot proposes would be able to rise with great speed, being very light, and would be armed with machine-guns or bombs, which could be released when above an airship, and would carry searchlights. This equipment would not weigh as much as a passenger. To secure lightness and lifting-power, he suggests that the pilot should be unaccompanied. M. Blériot does not approve of double-motored aeroplanes. It is probable that planes built to carry searchlights only will be produced.

The problem which the mounting of a larger gun than of rifle-calibre presents is one of enormous difficulty, and introduces many complications in construction. The wind-resistance of the gun itself is a difficulty, not so much because it may reduce speed, nor because the gun when turned from side to side for firing may

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act much as does a front rudder, but because of the disturbing effect on aim of the wind-pressure on the gun as it is being turned about for aiming. The gun itself, whether for a 1-lb. or a 1½-lb. shell, is a large object, particularly if a quick-firer of the water-cooled variety. If it be not a quick-firer, practice cannot be good; so that there are sufficient reasons for looking on this as the desirable type of gun, except that a machine-gun is the best for fighting another aeroplane, and to mount any gun is a difficulty.

With a quick-firing gun a problem is introduced in the matter of the gun's reaction on the aeroplane. It has been estimated that 100 shots a minute would give 3300 ft.-lb. backward momentum to the aeroplane, and the backward retardation of an aeroplane of ordinary weight would therefore be about 2 ft. a second for each second of firing time. This would cause a loss of speed to the aeroplane of nearly seven miles an hour for every five seconds during which firing was continued. This speed could be recovered by descending, but to descend is by no means always what a pilot will want to do after a rapid approach for attack on another craft. If firing of this sort were to be continued for one minute, the aeroplane would practically have lost its flight speed and be helpless in the air, save by extremely rapid descent. This difficulty is to a considerable extent met in the heavier types of machines.

Ascensional power and range.

For the duties and effect of the armed aeroplane there is need for very great ascensional power. At least 1000 ft. a minute is wanted, and size is essential. Large wing-area for load is one of the factors for quick rising, and the top position is looked upon by most authorities as the desirable position for attack, whether upon another aeroplane or upon an airship. There is another condition which must be fulfilled by the useful aeroplane if it is to be employed against long-distance craft such as airships. This is that the duration of flight of four and a half hours, which was accepted as sufficient, should be at least doubled. This involves carrying larger tanks and more fuel, and brings us back to the vital importance of developing as quickly as possible the really large aeroplane necessary for transporting considerable weights at useful speeds.

Limitations of aeroplanes.

But there are limitations to size, and doubt attends the possibility of building successfully aeroplanes with a useful lift of 2 or 3 tons. Mr. Lanchester, who is a member of the Government Advisory Committee, states that among the limiting factors is the necessity of an adequate factor of safety. This factor, he says, varies from three in certain machines to as high as seven or eight in the case of certain of the machines constructed at the Royal Aircraft Factory. His chief reason for the limit of size is that the weight of wing

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structure will increase very greatly with larger span. Thus, where a machine of 40 ft. span has wings weighing 400 lb., a machine of 80 ft. span has wings weighing 3200 lb. Again, the limit for any given type of structure is that at which the weight of the wings is equal to twice the weight represented by the military load, the human freight. Mr. Lanchester divides what is usually known as "useful load" into military load and petrol capacity. These calculations, it may be observed, appear to take no account of the possible advantages of triplane and quadruplane types, or of entirely new wing forms. Mr. Lanchester admits, indeed, that large machines for carrying heavy bombs or other loads may be required. Seaplanes, he says also, may, in certain cases, be built on a larger scale than would otherwise be necessary.

Into the many arguments which have been raised as to the characteristics of heavier-than-air craft, and the assumed failure of the authorities to produce the best types in sufficient numbers, it is not the purpose to enter here. Obviously types are required of the utmost power and range attainable. The purpose here has been merely to indicate the direction of progress. The problems of the present and the near future are obviously those concerned with the provision of propulsive means for attaining a very high horizontal speed, and sufficient ascensional speed, and of reaching the desired altitude to secure the superior position; and still more, except in observation machines, with the required armament and the possibility of properly mounting it with a very large arc of fire, and employing it successfully, in view of structural and important ballastic considerations, and of the interruption of the field of fire by the canvas-covered planes on the sides or above, by the supports and stays of the aeroplane and the whirling of the gigantic propeller.

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CHAPTER V.

The War and Some Portents of Naval Machinery Design.

The supreme test of war.

That naval machinery has stood the supreme tests of war with admirable results it would be very easy to demonstrate with adequate proof, were it not that the necessity for prudence forbids disclosure of the details. For eight or ten years prior to the outbreak of war the Engineering Department at the Admiralty had displayed a measure of originative and progressive activity unexcelled in any other navy. Steam pressures were greatly increased, turbines superseded reciprocating engines, and every new feature in turbine design was tried, and, if proved satisfactory, readily adopted; while at the same time the dominant need for lightness, to obtain increased horse-power for the weight allowed for machinery, was ever kept in mind. Any suggestion of invention was given by the Engineer-in-Chief of the Navy (Engineer Vice-Admiral Sir Henry Oram, K.C.B., F.R.S.) a willing, if critical, reception. Thus, alike for its efficiency and reliability, the propelling machinery of our warships has been well able to endure almost continuous high-speed steaming in all weathers, and especially amid the wild gales of the northern seas, necessary during the progress of the war.

The value of speed.

It is revealing no secret to say that never once has the machinery been found wanting. It has in all types of ships answered the instant call to "put to sea," and within fifteen minutes has, when necessary, developed as great power as, if not greater than, on trial trips, when it has been thought that conditions were arranged to achieve easily the maximum results. In running fights, such as that within the Bight of Heligoland, off the Falkland Islands, and on the Dogger Bank—in all of which effective destructive work was done on the enemy's ships—the British vessels proved superior to their opponents. That is not surprising, as there had always been the suspicion that the high speeds recorded in the public Press for the German cruisers and destroyers were exaggerated, either by the vessel not being down to her loaded draught when running the mile, or by the maximum being stated as the mean rate of speed. This was done to promote German industrial interests, but the speeds recorded did not mislead the designers of British ships, whose business was always to "go one better." In all our battles and "scraps" we have been the attacking

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force, and the speed with which our vessels were endowed, through ample boiler-power and reliable propelling turbines, with adequate auxiliaries, has proved a great tactical advantage. The voyage of our fleet of battle-cruisers, traversing secretly at great speed over 7000 miles to arrive at a predetermined moment at the Falkland Islands, reflects as high a credit from the engineering standpoint as does the prescience which anticipated that Admiral von Spee would make for those islands of the Atlantic after his triumph over the inferior force off Coronel.

Mechanical progress maintained in war-time.

The cool courage which has given to our strategists and tacticians such reliable and effective driving force continues to be operative. The time has not yet come for writing of the wonderful and extensive naval work undertaken since the outbreak of war—wonderful in its evidence of progressive ingenuity, as well as in its magnitude. But there are portents of advance which can be mentioned without any relaxation of that prudence which patriotism demands; more particularly as these portents are concerned rather with elements of applied science as universally practised than with purely British ships. It will be found that our Admiralty have advanced generally along the same lines as before the war. It would be unwise to strike out into any new experiments and uncertain inventions. At the same time the experiments under trial prior to the war have justified our designing authorities in maintaining progress in practically all the features of propelling machinery. The inventor, too, is ever active, especially in commercial establishments here and abroad, and much of his work has an influence on the future warship which can here and now be analysed.

Combined impulse-reaction turbines generally accepted.

In the first place, it is to be noted that in practically all countries the velocity-compounded impulse turbine wheel for the initial stages, with reaction blading for the subsequent stages of expansion, is steadily becoming a standard design for ahead working, and in some cases the impulse-wheel is similarly utilised for astern running. In previous issues of the *Naval Annual* this system has been fully described, but it may be well here briefly to state the principle and the benefits accruing. The advantage of the system lies in the fact that the high-pressure steam can be fed to the wheel over only a fraction of the complete circumference of the ring of blades. With reaction blading, on the other hand, the "admission must be complete"; that is to say, the steam must be supplied around the whole circumference. As high-pressure steam is very dense, this condition implies the use of very short blades, with the result that a part of the steam may leak away through the clearances without doing any useful work. There is, moreover, another special feature in which these turbines differ

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from the older form. In order to obtain reasonable efficiency in a steam turbine, the peripheral velocity of the blades must bear a certain proportion to the velocity of the steam past them. This velocity is determined by the difference of pressure on the two sides of the various rows of blades. The fall of pressure at each row of blades, where many rows are arranged, is less than where fewer rows are employed. Consequently, the velocity of the steam is also less where many rows of blades are used, and thus lower speeds of rotation are admissible. In the impulse turbine few rows of blades are used; the drop of pressure past each row is large, and consequently the velocity of the steam past the blades is high. The fact that the wheel is velocity-compounded makes, nevertheless, a reasonably low rate of revolution economically practicable. This system of impulse-turbine has been greatly improved since it was first taken up by British engineers, which, however, may be but a coincidence. This is proved by the fact that some of the United States vessels fitted with the original type, as well as others with the Zoelly turbine, are now using, instead of turbines velocity-compounded throughout, a combined impulse and reaction-bladed turbine. In many instances there is only one impulse row or wheel; in others there are several such wheels.

Gearing a standard system.

An approach to standardization in practice can now be recorded in connection with the gearing between the turbine and the propeller. When Sir Charles Parsons applied this idea in the Vespasian, in 1897, he met with very considerable doubt as to its reliability and efficiency; but there can be no question to-day that in this departure he did as great a service to ship propulsion as by the introduction of the steam turbine itself; and when the history of the past year's shipbuilding can be told completely it will be found that the gearing has proved itself suitable to all powers, even the greatest. That some form of gearing has become necessary is universally accepted, so that the turbine may be run at the maximum number of revolutions to give the best thermodynamic results, while at the same time the propeller is rotated at a comparatively low rate to ensure the best efficiency. Mechanical or helical-toothed gear is most readily applied, but, in considering portents, other, and notably electrical, transmissions of power between the turbine and propeller must be given due prominence, as greater advances in application have been made in connection with these. Formerly the reduction between the revolutions of turbine and propeller by mechanical gear seldom exceeded the ratio of 10 to 1. But there is a set of machinery being constructed in the United States where the turbines are to run at 3500 and the propellers at 90 revolutions per minute. With such a ratio the slowest cargo-ship

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can be brought within the ambit of turbine propulsion with very economical results. In this case the reduction in the ratio of nearly 40 to 1 is attained by means of a double set of gearing. The turbine shaft is coupled to a pinion with helical teeth, which gears into two wheels, on separate shafts, which thus are rotated at about 700 revolutions per minute, each of these shafts transmitting one half of the power. Pinions on these shafts gear into a double steel wheel on the main shaft. The arrangement provides for a certain amount of flexibility and elasticity, by means of spherically seated bearings for the gear shafts. The extremely high speed of rotation of the turbine, and the small number of rows of blades, permit of this part of the machinery being much lighter than the corresponding parts in an ordinary marine steam turbine of the same power.

A typical example of gearing.

Normally, however, the reduction desired is in the range of 25 to 1. Even this, in association with the great powers now transmitted through gearing, demands the greatest accuracy in manufacture. This is now achieved, and the general arrangement comprises two turbines—the one a high pressure and the other a low pressure turbine—each of which is coupled to a pinion gearing into a wheel on the propeller shaft, the grooving being helical. Data for a medium-sized installation may be given as an example. The power transmitted in this case is 22,000 H.P., with a reduction ratio of 10 to 1. The pinion is of 7·66 in. in pitch diameter, and has twenty-three double helical teeth; it runs at 3000 revolutions per minute. The wheel is of 77·33 in. pitch diameter, with 229 teeth, the useful width of the face being 3 ft. and the width over all 4 ft. 6 in. From the foregoing it appears that the pitch line speed is 100 ft. per second, and the pressure 336 lb. per lineal inch of effective width of wheel. The lubrication is forced throughout, the oil being supplied under pressure by a small centrifugal pump arranged at one end of the pinion shaft. All the bearings are accessible without removing the main cover. The brasses are lined with white metal. The supply of oil to the pinion enters the centre of a long sleeve enclosing the pinion from end to end, but cut away on one side so as to clear the teeth of the driven wheel. At each end this sleeve is bored to fit the external diameter of the pinion for a length (axially) of about 1 in.; but the intervening space is larger than the pinion diameter, and this annular space is kept filled with oil by the pump. A uniform distribution of lubricant over the whole length of the teeth is thus secured. The pinion is of nickel steel specially heat treated. The teeth of the driven wheel are cut in forged steel rings shrunk on to cast-iron centre pieces, machined all over and accurately balanced.

Cases of gear breaking are very rare. The standard pitch for

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Improvements in gearing.

large marine installations is now 0·583 in., and the wheel teeth have very short addenda. Great care is necessary, not only in cutting accurately, but in securing alignment. In the United States installation referred to already the gear is mounted, as indicated, in a floating frame, but British engineers do not consider this to be necessary if the gear is accurately cut. The idea embodied in the floating frame is that the pinion should be located by the teeth of the gear rather than by fixed bearings. At first sight, however, any self adjustment of the frame to compensate for errors in the teeth would appear to be impossible, owing to the very high speed of the pitch line, and the considerable inertia of the pinion and its frame. If the error in question were confined to a single tooth, it would seem that this conclusion would be indefeasible; but the experiments of Sir Charles Parsons do undoubtedly put rather a different aspect on the matter. He found by actual measurement that the errors in well-cut gears were periodic in character. But Sir Charles has solved the difficulty by abolishing the periodic errors, and thus overcomes the need for a floating frame.

Economy at low powers.

It is not always easy to get actual comparative data of direct and geared turbine installations, but an experienced firm has produced designs for a ship 600 ft. long and 21,000 tons displacement, to steam 19½ knots, and the gear-driven machinery showed a coal economy of about 7 per cent. and a reduction in weight of over 11 per cent. These gains, which are additional to those of turbine drive over reciprocating machinery, are certainly moderately estimated, and in naval practice it would be easy to show much greater gains actually realised. They are, too, likely to be greatly improved.

A new arrangement of turbines and gear.

The most interesting development in gear-drive is proposed by a firm in the United States for two foreign warships to have a power of 22,000 S.H.P. The high-pressure turbine, which is of the impulse wheel and reaction type, drives the propeller shaft through helical reduction gear. Whilst, however, sufficient nozzles are provided in the impulse section of this turbine to pass all the steam required at full power, the reaction blading is designed to pass only one-third of this quantity of steam, the remaining two-thirds passing through a suitable valve to a turbine which is also geared to the screw-shaft by a second pinion. Each of these turbines is connected directly to the condenser. At low powers a valve between the two turbines is completely closed, so that the steam passes through the one turbine only, in which it is expanded down to the condenser pressure. Of course, at such low powers the larger proportion of the nozzles feeding the velocity-compounded wheel are closed. But only one

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turbine is then in use, and this turbine is designed to develop economically one-third of the full-speed power, the second turbine being, at low powers, entirely cut out, as already mentioned. In this arrangement it will be seen that at cruising speeds the number of turbines in operation is reduced, whilst with the older arrangement special cruising turbines are fitted, and additional units brought into use as the demand for power falls off. An emergency high-pressure connection is also provided to the low-pressure turbine, enabling it to be worked with steam taken direct from the boiler should the need arise. The reversing turbine, which is constructed entirely on the velocity-compounded system, is arranged within the casing of the high-pressure turbine and can develop 60 per cent. of the full power ahead. In this 22,000 H.P. geared turbine installation, the steam consumption, using dry saturated steam of 225 lb. pressure, is guaranteed at 10·8 lb. per S.H.P. per hour for full power, 10·5 lb. for 80 to 85 per cent. of the full power, 11·5 lb. for 25 per cent., and 15 lb. for 15 per cent. of the full power. Thus for half speed the increased consumption per H.P. as compared with full power is less than 20 per cent., whereas with reciprocating engines the rate was often double and more. At full power the consumption for reciprocating engines was usually 50 per cent. more than in this particular installation. With increased ratio of reduction the gain is correspondingly increased, and with mechanical gear there are still higher possibilities in this direction, as suggested by the 40 to 1 double-reduction gear installation now being manufactured in the United States.

Hydraulic transmission and reduction system.

With the mechanical gear system hydraulic and electrical transmission are competitors which are steadily demanding fuller attention by those who are responsible for our naval machinery, but while with the first-named the loss in transmission is between 1 and 2 per cent., it rises in the other systems to from 8 to 12 per cent. The hydraulic system, of German origin, utilises the turbine for driving a primary pump which produces pressure water of the desired power to drive secondary pumps on the propeller shaft, one for ahead and the other for astern propulsion. The system was dealt with fully in a former issue of the *Naval Annual.* The war has interfered with its application. The first commercial installation fitted was in the Königin Luise, which traded between Hamburg and Heligoland. She was brought to the Solent in May, 1914, to allow our Admiralty engineering authorities to test the working of the system, and the next heard of her was her destruction, while mine-laying in the North Sea, by the Amphion, the first naval victory of the war. There is an installation of this turbo-hydraulic system nearly

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completed for 10,000 H.P. per shaft, and no doubt after the war more will be heard of it.

Turbo-electric installation in U.S. battleship.

Two distinct turbo-electric transmission systems are in use, and they afford distinct portents of the future. The idea had its origin in this country, the desideratum being the same as that which determined Sir Charles Parsons to apply helical gear wheels, namely, to reduce the relative speed of rotation of turbine and propeller. The United States naval authorities, in order to test the system in practical work, fitted it to a collier named Jupiter. The turbine was there used to drive an electric generator, and the current was transmitted in the usual way by wires or cables to the electric motors on the propeller shaft. Sister ships had, the one, geared turbines, and the other reciprocating engines. The turbo-electric machinery of the Jupiter weighed 223 tons, the geared turbines of the Neptune 188·9 tons, and the reciprocating engines, with auxiliaries, of the Cyclops 342·6 tons, excluding boilers in all cases. The Neptune's engine-room was 5 ft. shorter than that of the Jupiter, another advantage in favour of geared turbines. The performance of the Jupiter, during nearly two years commission, resulted in electric transmission being adopted for the battleship California, since named the New Mexico. Further comment on the Jupiter's results is therefore here unnecessary. The estimated displacement of the battleship is 32,000 tons. The turbines are to develop 37,000 S.H.P., and the four propellers will run at 175 revolutions per minute to give a legend speed of 22 knots. The turbo-electric propelling machinery, according to Mr. W. L. R. Emmett, who is on the staff of the manufacturers, includes two turbine-driven generating units, four propelling motors (one for each shaft), switching apparatus, cables, instruments, etc., two turbine-driven exciting units, and a complete equipment of condensing auxiliaries and ventilating fans, all driven by motors from the exciting units. Each of the auxiliary units is of 300 kilowatts capacity with a 240-volt direct-current generator geared to a high-speed non-condensing turbine. These turbines will exhaust into the heaters or into the main turbines, or both. The motors which drive the auxiliaries will be designed for a considerable range of speed variation, so that the auxiliaries will be adaptable to economical conditions at different speeds of the ship. The generators for the New Mexico are to be bi-polar alternators, and the motors are arranged to be connected either for 24 poles or 36 poles. For economic cruising at 15 knots or less, one generator will be used with the motors on the 36-pole connection. For higher speeds the 24-pole connection will be used. The ship will be capable of operating at a speed of about 18·5 knots with one generator. Speed variation with

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either motor connection will be effected by change of turbine speeds through the agency of variable speed governors, designed to hold automatically any desired speed within usual ranges. This arrangement, which is also used in the Jupiter, entirely prevents racing, and makes it convenient to hold a fixed speed, irrespective of variations in sea, weather or steam conditions. It is thought that this feature will be valuable in fleet formations.

Weights and economy of turbo-electric installations.

No data are yet available as to the space occupied by this electrical installation, but the weight, excluding boilers and condensing auxiliaries, is 530 tons, and it is said that the turbine machinery proposed for the same ship would have weighed 653 tons; but in such a comparison it is always difficult to say whether the best has been made of either design. Moreover, it is difficult to reconcile the figures quoted with others for a 10,000 H.P. twin-screw ship. The weights for machinery, excluding boilers and auxiliaries, were, for geared turbines, 274,000 lb.; for turbo-electric drive, with geared generators, 304,000 lb.; and for the turbo-electric drive, with direct connection between the turbine and generator, 423,800 lb. The price of the electric gear for the New Mexico, as described, is stated to be £88,500. The manufacturers, the General Electric Company, have guaranteed that at maximum power and speed the steam consumption will not exceed 11·9 lb. per S.H.P. per hour; at 19 knots 11·1 lb.; at 15 knots 11·4 lb.; and at 10 knots 14·6 lb. The penalty is £5000 per lb. of steam consumption in excess of those stated for the two lower speeds, and £4100 per lb. of steam for the two higher speeds. This consumption may be compared with the geared turbine installation fitted in the United States to the warship already referred to, where the full-power consumption is guaranteed at 10·8 lb., which is 1·1 lb. less than that of turbo-electric drive for the New Mexico. The results of the trial and work in commission of this United States battleship will be watched with very great interest.

A new electric system.

The other system of electric transmission differs materially from that described, and merits close attention, not only because it is in operation in a steamer engaged on the Swedish coast, but it has been taken up in this country by Sir William Beardmore, who is noted for a characteristic spirit of enterprise, which has resulted in many new departures being brought into operation. This will probably be fitted in an intermediate transatlantic liner by a British company which has shown the way, not only in speed of liners, but in the introduction of machinery systems of novel but promising types. They have also determined to try in an exactly corresponding ship water-tube boilers and oil fuel, with geared turbines of the latest

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type, so that there will be opportunity for direct comparison as to economy and other qualities.

This electric system utilises a turbine invented by a Swedish engineer, Mr. Birger Ljungström, to drive an electric generator providing current to operate electric motors, which in turn drive the propeller shaft through Parsons helical gearing. Thus the reduction is in two stages. The turbine and electric generator work at 3000 revolutions, the motors at 500, and the propeller at any speed desired. Thus there can be a reduction between turbine and propeller practically of any ratio. The data given by the representative of the Ljungström turbine manufacturers regarding two Swedish boats, the one with this system and the other with reciprocating engines, may be given here, but again it should be remembered that in this case the reciprocating engines, with which comparison is made, may not have been the best possible. In any event, however, the coal consumption of 0·89 lb. per I.H.P. is a remarkable one. The Swedish boat fitted with Ljungström turbo-electric drive, the Mjölner, of 850 S.H.P., trades between Stockholm and Gothenburg, and her performance during twenty months of running compared well with her sister ship Mimer, running on the same route, and fitted with triple expansion reciprocating engines. With similar coal of 13,500 B.T.U.'s, the electrical ship's daily consumption in twenty-four hours was 9 tons when developing the equivalent to 940 I.H.P. as compared with the consumption of the Mimer of 15 tons under the same conditions of power, speed, weather, and displacement, showing a saving of 6 tons per day. The coal consumption reduced to I.H.P. in each case is 0·89 lb. for all purposes in the electrically-driven ship and 1·52 lb. in the ship with reciprocating engines. The steam conditions in the Mjölner were: Pressure 200 lb., superheat 190 degrees F., and vacuum 29 in.; in the Mimer, saturated steam pressure 180 lb. and vacuum 26 in. (barometer 30 in.). Part of the gain is due to the steam being superheated to the extent of 190 degrees F., and one of the features of the Ljungström turbine is the ease with which high degrees of superheat can be utilised.

The Ljungström reaction system.

The Ljungström turbine differs materially from the reaction and impulse machines now commonly in use, and the aim is to increase the relative speed of the reaction blading in order to achieve a closer approximation to that theoretically desirable. In an ordinary reaction turbine half the blades are mounted on the fixed casing and half on the moving drum. If the casing were rotated backwards at the same speed as the drum rotates forward, the relative velocity of the drum blades to the casing blades would be doubled, and a close approach to the best theoretical ratio of blade speed to

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steam speed would be commercially feasible. There are obvious mechanical difficulties in embodying this idea in an axial flow turbine, but the difficulties, though still serious, are less if the flow be radial. By the exercise of great ingenuity and originality, these difficulties have been surmounted by Mr. Ljungström, and some remarkably low steam consumptions have been recorded with turbo-generators built to his patents. The Ljungström turbine consists essentially of two discs, mounted concentrically face to face on two independent spindles. Each of these spindles drives the rotor of an electric generator. One disc runs in one direction and the other in the other. The rings of blades project from the face of each disc and interlock. In the case of a machine for an electrical output of 7000 kilowatts each disc has thirty-eight rows of blades, the largest ring has a diameter of 33½ in., whilst the diameter of the smallest ring is approximately 6 in. The steam is introduced into the turbine at the centre and flows out radially between the two discs, passing through the projecting rings of blades, driving one set in one direction and the other set, which is attached to the other disc, in the other. For its output the turbine is extraordinarily light and compact, and as the method permits of a close approach to the theoretically best ratio of blade speed to steam speed the efficiency is very high. The turbine being extremely symmetrical, very high superheats can be used without danger from distortion arising from inequalities of temperature. Further, since where the temperature is high the steam speed is low, there is little risk from blade erosion. In the Ljungström marine installation referred to electric motors have been used as an intermediary between the rapidly rotating turbine spindles and the propeller shaft, but it is also proposed to drive the propeller shafts from the motors by the usual double helical reduction gears now being so largely applied with other types of marine turbines.

Superheated steam.

That there is a gain from the superheating of the steam has long been accepted. There are 1500 merchant ships, with a collective H.P. of 2,000,000, using superheated steam in connection with reciprocating engines, in which the gain is due to diminished condensation and greater fluidity of steam. Anything up to 100 degrees F. reduces the steam consumption, even in turbines, 1 per cent. for every 10 degrees F. superheat, but between 100 and 200 degrees F. the increase falls off to 1 per cent. for 12 degrees F., and between 200 and 300 degrees F. the gain is one for every 14 degrees. Thus for 300 degrees the reduction in the steam taken per kilowatt hour may be as much as 2·5 lb. In the turbine the gain is purely due to reduced blade friction. It is doubtful, however, if there is need

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for very high degrees of superheat. In the Ljungström system in the Mjölner steam was superheated to the extent of 190 degrees F., but with this turbine 300 to 350 degrees is proposed. But the Engineer-in-Chief of the British Navy has said that superheat has been adopted but sparingly in the Navy, and that he personally should prefer to be without it entirely. This view is the more noteworthy as it is founded on practical experience, and as the degree of superheat on naval ships is very moderate.

The oil engine.

Oil fuel in the steam boilers is now universal for warships, but in the use of oil within the cylinders of the internal combustion engine not much progress has been made except for submarine craft, its adoption in surface naval ships having been confined practically to oil carrying ships. It is significant, however, that in four years the number of seagoing merchant ships with such engines has increased from three to seventy, their deadweight carrying capacity from 5000 to 350,000 tons, and their collective B.H.P. from 1200 to 110,000 B.H.P. There are also other distinct indications of the progress of the system. At the beginning of this year there were building fifty of such vessels of 300,000 tons deadweight capacity and 100,000 B.H.P. When oil decreases again in price the low consumption of under one-half of a lb. per I.H.P. per hour, as compared with 1 to 1½ lb. for steam machinery, must accelerate this expansion of the system, and must quicken also the experimental work for machinery for naval ships. The greatest power developed per cylinder in internal combustion engines for merchant ships is 384 B.H.P., and that too in the two-cycle engine, while the highest power in the four-cycle engine is 270 B.H.P. The experiments with cylinders developing up to 2500 B.H.P. are in abeyance owing to the war.

Limitations in sizes of submarine boats with oil engines.

It is doubtful if even in Germany powers greater than 500 H.P. per cylinder for submarine boats have been exceeded. Unless other prime movers are used, it is recognised there is a limit placed on the speed of such boats, because a multiplicity of cylinders to give the necessary high power would require a vessel of a size which might prove disadvantageous. This M. Laubeuf has very succinctly summarised as follows :—(*a*) Greater difficulties of evolution while submerged. (*b*) Too great a draught of water in the condition of navigation on the surface as well as in the submerged condition. The draught of water in surface navigation does not allow them to pass in small depths ; the draught of water when submerged prevents them passing under the keel of an enemy's ship—a necessary manœuvre if the submarine when attacking finds itself too near the ship it aims at. (*c*) Too large a turning circle on the surface and

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submerged. This is of very great importance. (*d*) Too high cost. The experience gained in naval manœuvres, as well as in actual war, shows that a great number of submarines is necessary; and this becomes impossible, especially for the minor navies, if the cost of each is too high. These considerations lead to the conclusion that it is preferable to have two distinct types of submarine.

Possibilities of speed of submarine boats with oil engines.

Even in fleet submarine boats, as distinct from coast-defence vessels, there are limitations. The lightest engine of the Diesel type for submarines weighs about 60 lb. per B.H.P., and the average is probably 100 lb. In view of this, Mr. L. Y. Spear, who has been responsible for the construction of so many of the United States submarine boats, says that in the latest stage of development of the single-acting Diesel engine it is entirely practicable to instal a submarine power plant of from 4000 to 5000 H.P. in a boat of from 900 to 1100 tons surface displacement. When this displacement is coupled with a length of about 260 ft. a speed of from 20 to 21 knots can be obtained with the above power. When we come to consider the question of a speed of 25 knots or more, it is well to remember that excessive length in a submarine is in itself a very undesirable feature. Adopting, say, 300 ft. as the limit of length, and coupling this with a displacement of about 1200 tons on the surface, from 10,000 to 12,000 H.P. would be required for a surface speed of 25 knots. An installation of Diesel engines of such power would at the present time be experimental. It follows that, notwithstanding its serious disadvantages for submarine service, submarine designers may, in the immediate future, be forced to employ a steam plant in order to meet the demand for a surface speed of 25 knots or more. On this point time will tell its story.

Oil engines for battle-cruisers.

The engineer of one of our naval construction firms, with large experience both in the naval service and later in the manufacture of high-speed oil and steam machinery, ventured at this year's meeting of the Institution of Naval Architects upon a consideration of installations for naval vessels. He came to the conclusion that oil engines for destroyers were impracticable, since the saving in fuel would not compensate for the extra weight of machinery, namely, 50 per cent. more than with turbines. In light cruisers there would only be a gain in fitting oil engines for cruising. As to large cruisers of 72,000 B.H.P. to give 30 knots speed, the view taken was that the internal combustion engine would be possible with moderate power two-cycle double-acting cylinders, say, of 750 to 6000 B.H.P., each working in multiples of six to twelve on a series of shafts, from four to eight, preferably six shafts. With six shafts having twelve cylinders, each developing 1000 H.P., the weight would be 5000 tons including all

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auxiliaries. With eight shafts, each having twelve cylinders of 750 B.H.P., the weight would be 4750 tons. These weights are distinctly higher than would be necessary with a geared turbine installation. It is true that there would be a saving in the weight of fuel for the same radius of action, but we have yet to complete experiments with such high-power oil-engine cylinders. The same authority thinks battleships could be driven with four lines of shaft without increasing displacement, with three-fold addition to the radius of action for the same fuel supply at full speed and four-fold at cruising speed. The weights are given approximately, but they show that the oil engine is not yet quite out of the running. It has possibilities, like many other systems to which attention has here been directed, and the experience of the past gives assurance that those responsible for engineering in the British Navy will not be lacking in ingenuity, courage, or discretion when the demands of war do not forbid them to direct more attention to the possibilities of the future.

ALEX. RICHARDSON.

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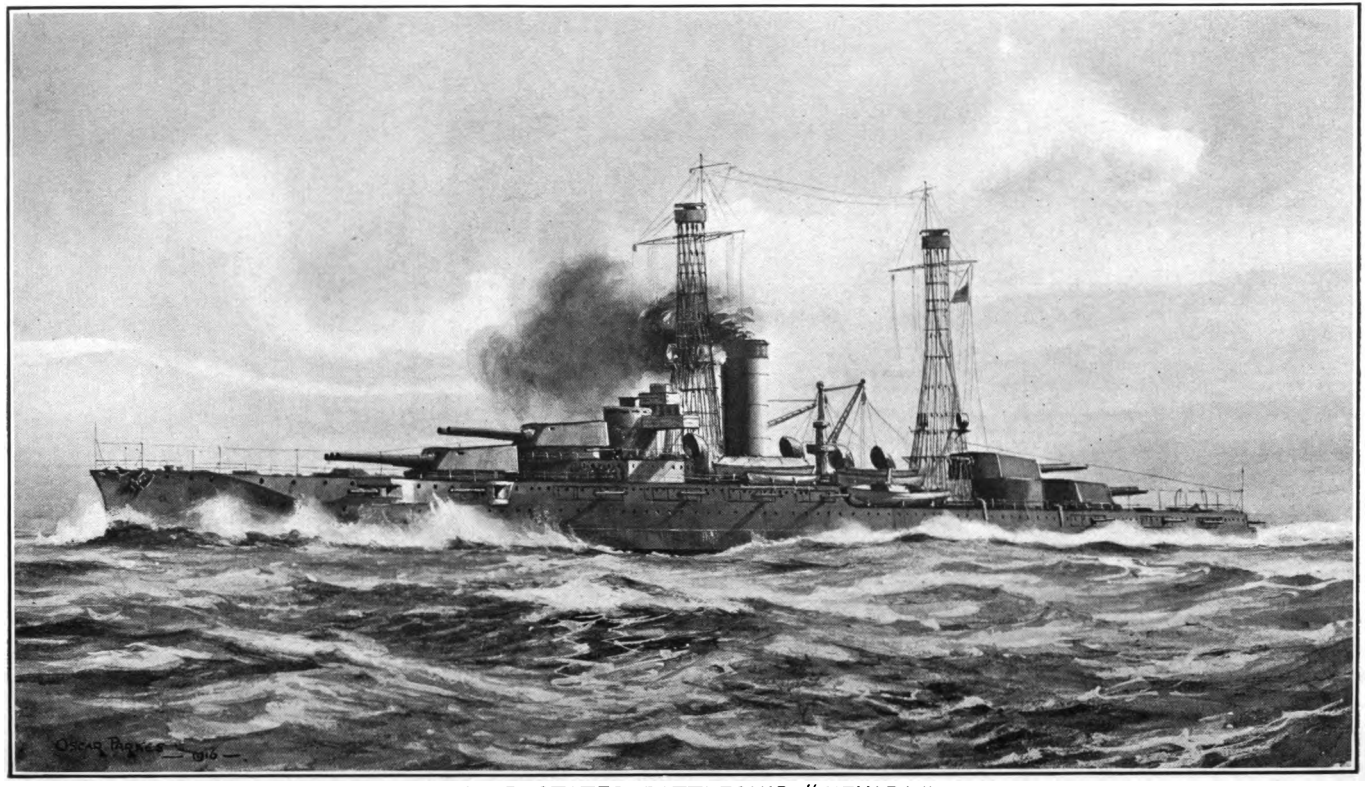

UNITED STATES BATTLESHIP "NEVADA."

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CHAPTER VI.

THE UNITED STATES NAVY.

THE war has had an inevitable influence in stirring public opinion in the United States to its depths. The spectacle of a vast conflict which was shaking the world, and was rich in lessons of supreme naval significance, could not leave naval opinion unmoved. In the dealings with Germany in relation to the submarine campaign, and the repeatedly unsatisfactory Notes presented by Count Bernstorff, the people at large were oppressed with an indefinable sense of American impotence. Alarm was spread throughout the country, and agitations, followed by serious measures for the increase of the naval and military forces, were set on foot. A profound sentiment of discontent affected the body politic. "The influences of the great war are everywhere in the air," said President Wilson at the semi-centennial anniversary of the Manhattan Club in New York. "All Europe is embattled. Force everywhere speaks out with a loud and imperious voice in a titanic struggle of governments, and from one end of our own dear country to the other men are asking one another what our own force is, how far we are prepared to maintain ourselves against any interference with our national action or development."

The war and American public opinion.

Deep heart-searching among the people led to a questioning of the future of the country. Sound strategy did not rule in all that was said. Calculations were put forward of the time within which Germany could land an army in the United States, and follow it up with reinforcements—and like calculations were made for Japan and even for Great Britain. On the one hand lay the pathway of shiftless unpreparedness and at the end of it danger; and on the other, the busy pathways of forethought, preparation, and efficiency, with safety near at hand. How deeply the anxiety was felt in some quarters may be divined by the fact that the very soberly inspired *Army and Navy Journal of New York* gave utterance to the following sentiments:—

Every true American must feel keenly the contempt with which we are viewed from abroad, and rightly so viewed if our present attitude of non-resistance is to continue. We are proclaiming to the whole world that we are more concerned with the accumulation of wealth than with the development of manhood, and have no interest in the agonising struggles of the old world except to profit pecuniarily by its distress. The result to follow is as certain as the movement of the stars in their courses. The nation in which wealth accumulates and men decay is doomed. There can be no question of the fact that an enormous loss of prestige has resulted from the timidity we have shown thus far in dealing with a situation that called for

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prompt and vigorous action. In the estimation of the foreigners who are showing such a spirit of sublime courage and self-sacrifice there is stamped upon the brow of every American that epithet to deserve which were worse than death, namely—Coward.

Proposals for defence policy.

The objects were set forth by Mr. H. A. Wise Wood, chairman of a Conference Committee on National Preparedness, and won the approval of ex-President Roosevelt. The imperative necessity was, he said, that America should acquire naval and military strength sufficient to protect its coasts against invasion; to protect the Panama Canal; to protect its overseas possessions; to enforce the Monroe Doctrine; to insure respect for the inalienable rights upon the high seas (and in foreign territory) of its citizens and dependents; and, in order to meet these irrevocable obligations, the nation should immediately enter upon the construction of a Navy which, in size and efficiency, shall be such as speedily to restore it to the position it formerly held of second Naval Power in the world; and amplify its military strength so as to provide an adequate mobile Army as an incident to providing the means for successfully and immediately resisting any expedition that any one of the great military nations may be capable of putting on the shores. Mr. Roosevelt defined the instant needs as follows: "First, we should at once enter upon a comprehensive plan of naval construction which shall at the earliest possible moment make us the second Naval Power of the world. Second, we must insist upon the publication by the Government of the plans of the General Staff of the Army, so that the people may know what their military experts regard as the vital military needs of the republic." "I want a Navy for offence, if necessary, not merely for defence," declared Senator William J. Stone, chairman of the Committee on Foreign Relations. "I want to see the United States with a great merchant marine. Side by side with the merchant marine must grow the Navy. The merchant marine must be protected against depredation by any other Power in the world. A large Army is not necessary if the United States has a large Navy. If any other country develops a gun that shoots 25 miles, the United States must arm its coast defences with guns that shoot 30. They must be ahead of all other countries. This may cost money. But we have many important ports which must be protected. With these coast defences and a powerful Navy, there is little fear of any invasion."

Opinions of the Navy General Board.

The situation which has been reached is held to justify the reiterated recommendations of the Navy General Board, which represents the best naval opinion. These recommendations, not often supported by the Naval Secretary, have been consistently rejected, as will be seen by the following figures, referring to battleships only, which give first the year, then the number of battleships recommended,

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and next the number actually voted by Congress: 1903, 2, 1; 1904, 3, 2; 1905, 3, 1; 1906, 2, 1; 1907, 4, 2; 1908, 4, 2; 1909, 4, 2; 1910, 4, 2; 1911, 4, 1; 1912, 4, 1; 1913, 4, 3; 1914, 4, 2. On June 30, 1915, the General Board declared that the United States Navy should be equal to the most powerful navy maintained by any other nation in the world. The following are important extracts from the recent report of the Board, indicating the tendency of naval policy:—

The General Board believes that the course of the present war in Europe affords convincing reasons for modifying the opinion which it has expressed for the past eleven years as to the proper size of the Navy. A navy in firm control of the seas from the outbreak of war is the prime essential to the defence of a country situated as is the United States, bordering upon two great oceans. A navy strong enough only to defend our coast from actual invasion will not suffice. Defence from invasion is not the only function of the Navy. It must protect our sea-borne commerce and drive that of the enemy from the sea. The best way to accomplish all these objects is to find and defeat the hostile fleet or any of its detachments at a distance from our coast sufficiently great to prevent interruption of our normal course of national life. The current war has shown that a navy of the size recommended by this Board in previous years can no longer be considered as adequate to the defensive needs of the United States. Our present Navy is not sufficient to give due weight to the diplomatic remonstrances of the United States in peace nor to enforce its policies in war. . . .

After six months of war the submarine form of attack drew renewed attention by its direction against hostile commerce. To hastily-formed public opinion, it seemed that submarines were accomplishing great military results because little else of importance occurred in the maritime war to attract public attention. Yet at the present time, when the Allies have learned in great measure how to protect their commerce, as they learnt a few months previously to protect their navies from the submarine menace, it is apparent that the submarine is not an instrument fitted to dominate naval warfare. The submarine is a most useful auxiliary, whose importance will no doubt increase, but at present there is no evidence that it will become supreme. As to types of ships, the conclusion to be drawn so far from the history of the current war is that the battleship is still the principal reliance of navies, as it has been in the past.

New continuous ship-building programme.

In view of the situation which has developed, and the above recommendations, President Wilson adopted on October 15th a naval building programme covering a period of five years, involving the laying down of sixteen capital ships, as well as destroyers, fleet and coast submarines, and many auxiliary vessels, at an aggregate cost of £100,000,000 sterling.

This new programme, which it is claimed will double the fighting strength of the Fleet in five years—though it would be more correct to say eight years, since the former period is only that in which the ships will be laid down, and they take from two and a-half to three years to build—is remarkable chiefly for the introduction of a long-period building programme, analogous to that of the German Navy Law, and the recommendation that battle-cruisers shall be built. In his annual Report for the financial year ending June, 1915, which includes, however, the new programme, Mr. Daniels, the Secretary, refers to the question of battle-cruisers with reference to the destruction of the German Squadron at the Falkland Isles, and says the

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Proposed battle-cruisers.

superior speed of the battle-cruisers had such strategic value in that it enabled them to reach with great promptness their field of action. He added that it was a notable fact that in every naval event of consequence which had occurred in the North Sea area the leading parts had been taken by vessels of the battle-cruiser and scout types, and it was evident that had either side lacked such vessels it would have been at a disadvantage. "When the battle-cruiser type was first brought out it was argued that it could lie in line with battleships and be used as a battleship upon occasion. Experience of the war, however, seems to indicate that their primary function will be in independent action, and that if a possible antagonist is possessed of any material number of vessels whose speed enables them certainly to elude the battleship, and which are so powerful that they need not apprehend torpedo craft, it is necessary to have the battle-cruiser to cope with them." Evidently the Bureau of Steam Engineering and its head, Engineer-in-Chief Robert S. Griffin, have been set no simple problem in being asked to provide motive power for a speed of 35 knots, which, according to Mr. Daniels, is to be the speed of these battle-cruisers. The engines will, it is stated, be of from 150,000 to 200,000 horse-power.

Details of the programme.

The following tabular statement shows the feature of the programme. The second total is that of the effective strength in 1921, as estimated by the General Board, obsolete vessels being eliminated:—

	1917.	1918.	1919.	1920.	1921.	Total.	Total 1921.
Battleships	2	2	2	2	2	10	27
Battle-cruisers	2	—	1	2	1	6	6
Scout cruisers	3	1	2	2	2	10	13
Destroyers	15	10	5	10	10	50	108
Fleet submarines	5	4	2	2	2	15	18
Coast submarines	25	15	15	15	15	85	157
Gunboats	2	1	—	—	—	3	20
Hospital ship	1	—	—	—	—	1	1
Ammunition ships	—	—	—	1	1	2	2
Fuel oil ships	—	1	—	1	—	2	15
Repair ship	—	—	—	—	1	1	8
Total	55	34	27	35	34	185	355

The force in 1921 will also include twenty-five second-class battleships, ten armoured cruisers, and many other vessels.

In giving effect to his proposal the Secretary hopes to make the Navy self-supporting—building its own battleships, torpedo-boats, submarines, and projectiles, and making its own armour-plate and explosives. This is the method by which he hopes to escape from the demands of munition makers in times of crisis, and the political pressure that is brought to bear on Congress for the voting of large appropriations. He points to the success of the Brooklyn Navy

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Yard in the construction of the battleships New York, Arizona, and New Mexico, and says the results achieved justify an enlargement of the policy. He has directed the opening of the small steel plant at the New York Navy Yard. The purpose of establishing a government armour-plate plant has not been abandoned. His policy of striking at private establishments is severely criticised.*

Battleships.

The Dreadnought type battleships Oklahoma and Nevada have been completed, and the Pennsylvania and Arizona, launched respectively in March and June last year, are to join the Fleet during 1916. The Mississippi, Idaho, and New Mexico have been laid down. All these vessels will carry the 14-in. gun, for which great power is claimed, each of them having four turrets. In the three ships last named the length of the gun is increased to 50 calibres.† In the Oklahoma and Nevada the inner turrets mount two guns, and the outer turrets three, and in the other ships all the turrets have three guns. As compared with the Delaware the displacement has risen in the three later ships from 20,000 to 31,400 tons, and the weight of broadside in the same ships from about 4 tons to 7½ tons. The concentration of the heavy guns in few positions enables very thick armour protection to be provided. The gun-houses have 18-in. armour at the base, 8-in. shields over the ports, 9-in. to 10-in. on the sides, and 5-in. roofs.

Electric drive.

The New Mexico (originally named California), laid down at the New York Navy Yard on October 14th last, will be remarkable in being the first battleship in the world to be provided with the "electric drive," on a system tried very successfully in the collier Jupiter, and it is expected that the cruising range will be increased by nearly 50 per cent. Using her emergency fuel she will travel 3600 miles further than the Wyoming. It was desired to find some kind of bridge between a turbine running at a high speed and a propeller running at a low speed. A high-speed turbine is coupled to a dynamo, which produces electric current, and this current is led through cables to a slow-speed electric motor which is fixed to a very short propeller shaft. The turbine always runs at top speed, while the speed of the propeller is altered by controlling the current which passes into the motor. If desired, the current-controller can be put on the bridge, so that the officer can drive the ship dead slow, half-speed or full speed, ahead or astern, merely by moving a handle. The means of going astern will be markedly increased.

Two other battleships, Nos. 43 and 44, are to be laid down

* For further observations on this subject see Part IV.

† For the ballistic qualities of this gun see the Bethlehem Ordnance Table in Part III.

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respectively at the New York Navy Yard and Mare Island, in pursuance of the Secretary's policy of building in the dockyards. The latter make tenders as do the private yards, and Mare Island is to build a battleship, hull and machinery, for £1,383,285. Both the dockyards estimated under the private yards, which approximated to about £1,540,000, but a sum of £100,000 has to be expended at Mare Island to fit the yard for the work, and it is generally believed that the dockyard-built ships will cost more than the estimate. The limit was £1,560,000. The features of the ships of this class do not seem to be definitely known. The Navy General Board has advocated the mounting of 16-in. 45-calibre guns, implying an increase of displacement to 36,000 tons. It is stated that the vessels will have a new type of under-water construction as a protection against torpedo attack. Each of them will also have a captive kite-balloon, rising to a height of 1000 ft., to direct gun-fire.

De-stroyers.

The destroyers Downes, Nicholson, O'Brien, Conyngham, Jacob Jones, and Wainwright have been completed, and seven others are well advanced. The destroyers provided for in March, 1915, and recently laid down, Sampson, Rowan, Davis, Allen, Wilkes, and Shaw, will displace 1125 tons, and will be 310 ft. long, with 30 ft. 6 in. beam and 8 ft. draught, and will carry four 4-in. q.f. guns, two 1-pdr. anti-aircraft guns, four triple torpedo tubes, and have a speed of 30 knots.

Sub-marines.

The submarine branch is rapidly developing. In March last year occurred the first American submarine disaster. F 4 went to the bottom off Honolulu, and two officers and nineteen men were lost, but by exceedingly efficient work the boat was recovered from a depth of over 300 ft. In January E 2 sank as the result of an explosion in Brooklyn Navy Yard. Of the new boats, submarines K 3 to K 8 and G 4 were completed before June 30th last, and two others of the G class should now be in the service, also several of the L class, of which there are to be eleven. The M boats are the first to carry a gun, being a disappearing high-angle 12-pdr. M 1, which was launched equipped and ready for service by the Fore River Company on September 14th, has three periscopes, and a curved hull intended to reduce the chance of sinking by ramming. Her cruising range is nominally 2500 miles, but she can do much more, and the building company declare that she can cover 6000 miles without replenishing food or supplies. She can remain submerged seventy-two hours, and descend safely to a depth of 150 ft. In earlier stages are seven N boats, and three of the O class have been put in hand.

Contracts were let in the autumn of last year for sixteen coastal

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submarines, of 450–500 tons, and tenders for two fleet submarines of a new type were to be delivered on February 16th. These latter, Nos. 60 and 61, are designed to accompany the fleet at sea, and Congress stipulated for a surface speed of 25 knots, which is higher than that of any known submarines. There is a doubt as to attaining this speed within the limit of price (£390,000). Steam turbines and boilers were said to be necessary, but other power could be substituted; and the problem of cooling the engines before diving was to be solved by using oil, and separating the engine-room from the rest of the boat by bulkheads.

"Submarine hunters."

A class of swift motor submarine hunters has been devised, which can be carried on board ship. The type is that of Disturber IV., which was at Cowes in 1914, and Disturber V., which skimmed in America at the rate of a little over a mile a minute. Disturber VI. is bigger, and carries a torpedo tube and 1-pdr. gun, her speed being 41 miles per hour. In type she is said to be between the hydroplane and racing seaplane type.

These notes show that the American Navy is in a state of active development in correspondence with a larger and wider policy. The *personnel* is to expand with the material side of the Fleet, and within a few years the United States will have assumed a much higher place in the naval scale of the nations. There is much, however, yet to be achieved. Admiral Fletcher, commanding the Atlantic Fleet, in a confidential report, which nevertheless found its way into the Press, emphasised the shortage of officers and men, the lack of battle-cruisers and swift light cruisers, the limitations of submarines, the want of aircraft, the need of a radio direction-finder, the too frequent overhauling of battleships, the necessity of maintaining full complements, the demand for additional mining and mine-sweeping vessels, the lack of anti-aircraft guns, and some other defects and deficiencies. Certain of his recommendations are to some extent answered by the new shipbuilding programme.

JOHN LEYLAND.

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PART II.

LIST OF BRITISH AND FOREIGN SHIPS.

BRITISH AND FOREIGN AIRSHIPS.

ENEMY AIRSHIP SHEDS.

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PART II.

LIST OF BRITISH AND FOREIGN SHIPS.

It is only possible to indicate vaguely the additions made to the material strength of the British Fleet since the outbreak of war. For this purpose, too, official statements alone have been utilised. The purpose is, without affording information to the enemy, to enable readers of the *Naval Annual* to judge of the constant accession of strength which has been made both to the numbers and strength of the Fleet, and which enabled Mr. Balfour, on March 7, 1916, to state that "it is stronger in the face of any overt attack which it is likely to meet, that it is far stronger than it was at the beginning of the war, and is, I believe, stronger than it has ever been in its history."

The vessels under construction when hostilities began were of the programmes of 1912–13, 1913–14, and 1914–15. In the first-named there were four battleships of the Queen Elizabeth class, and the Malaya, a gift-ship from the Malay States, was also of this type. In the second there were five battleships of the Royal Sovereign class, in regard to which Mr. Churchill announced on February 15, 1915, that it had been found possible to convert the Royal Sovereign herself to a completely oil-fuel basis, so that this ship, equally with the Queen Elizabeth, would enjoy the great advantages of liquid fuel for war purposes. The third programme, 1914–15, included four battleships which had not been named when the war started.

The first indication that any ships of the Queen Elizabeth type were completed was afforded by the attack of the name-ship on the forts at the Dardanelles in February and March, 1915. Representatives of the Press, who were officially permitted to visit the Grand Fleet in the autumn and winter of that year, showed that the Queen Elizabeth had returned to Home waters, and in common with her sisters had joined the Grand Fleet. There were also the battleships Agincourt, Erin, and Canada, purchased, the two former from Turkey and the last-named from Chile, just before war was declared, and of which particulars will be found in the tables.

As regards light cruisers, eight vessels (Arethusa type) were included in the 1912–13 programme; eight more (Calliope type) in the 1913–14 programme; and four in that of 1914–15. The first of the Arethusas joined the Fleet on the eve of the Heligoland Bight action on August 28, 1914; another of the group, the Undaunted,

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was in action off the Dutch coast on October 17, 1914; and others were mentioned soon afterwards. So, too, were the vessels of the Calliope class, one of which the Germans claimed, in February, 1916, to have bombed in the Humber by Zeppelins, the Caroline, but the Admiralty denied that the ship was damaged.

The destroyers in the three programmes numbered forty-eight. The twenty ordered in 1912–13 were of the L class, of which fifteen or more were ready when war began, and the others very soon after. The sixteen of 1913–14 were known as the M boats, and were mentioned in the despatches concerning the Dogger Bank action on January 24, 1915. The 1914–15 boats, twelve in number, had not been named. Of the L boats, the Louis was lost at Suvla Bay in 1915; and of the next group, the M—— was also lost on March 25, 1916, during the air raid on Schleswig-Holstein. The exact numbers of the submarines building were not known, but in addition to the British boats of the regular programmes, it was reported in the American papers, during the summer and autumn of 1915, that a flotilla of ten submarines of the H type had been ordered in America, put together in Canada, and had satisfactorily completed the voyage to Gibraltar under their own motive power.

In reference to the new ships and programmes put in hand since war began, Mr. Churchill stated, on November 15, 1915, that "Prince Louis and I had ordered large war programmes on the outbreak of war, and perhaps from some points of view they may have been considered sufficient at the moment; but Lord Fisher came along with a new wave of impulse and enthusiasm. He was able to produce vast schemes of ship construction of every kind, with new designs and improvements on the old designs."

It was not likely, of course, that the authorities would give information in connection with these new programmes which might possibly be of use to the enemy. But for reasons considered sufficient, certain details were allowed to be published. Mr. Ashmead-Bartlett, the official "Eye-Witness" at the Dardanelles, was permitted to refer to the monitors, of three classes, all of which he described in general terms. Some time later, Sir Reginald Bacon referred in his despatches to several more ships of the monitor design. Another new class mentioned, of which at least two ships have been named officially, has been described as "mine-laying sloops," named after common or wild flowers. The Arabis was sunk on February 10th by German torpedo craft in the North Sea, and the Primula was torpedoed and sunk on March 1st in the Eastern Mediterranean. A third novelty in the Fleet is the fast motor-boats called "fleet messengers," to which Admiral Bacon referred in his despatch.

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Referring to the general progress of construction in his speech on the Navy Estimates, on March 7th, Mr. Balfour said that the whole process of making ships of war had been speeded up. New necessities were being provided for as rapidly as possible. The shipbuilding resources of the country were not only being used to an absolutely unexampled extent in making ships of war, but also in carrying out the necessary repairs for the Fleet. There was, however, the limit of labour, but up to the limit which labour offered the Admiralty were doing all that could be done in the way of shipbuilding. Replying next day to speeches by Mr. Churchill and others, the First Lord admitted that certain Dreadnought battleships had not been completed as soon as was hoped, but intimated that this was due to the former administration. He also revealed the fact that certain guns for the monitor fleet, which had been rushed into completion by the Churchill Board in about six months, came from America, but other guns had been taken for these novel ships that were intended for the Royal Sovereign class.

The following list of ships, sunk or otherwise destroyed, between the beginning of the war on August 4, 1914, and May 27, 1915, have been removed from the tables. Ships sunk in the interval, or since the last issue of the *Naval Annual*, will be found retained in the tables, but with their names in italics.

Battleships.

Bulwark	November 26, 1914.	Majestic	May 27, 1915.
Formidable	January 1, 1915.	Ocean	March 18, 1915.
Goliath	May 12, 1915.	Triumph	May 25, 1915.
Irresistible	March 18, 1915.		

Cruisers.

Aboukir	September 22, 1914.	Good Hope	November 1, 1914.
Cressy	September 22, 1914.	Monmouth	November 1, 1914.
Hogue	September 22, 1914.	Hawke	October 16, 1914.

Light Cruisers.

Amphion	August 6, 1914.	Pathfinder	September 5, 1914.
Hermes	October 31, 1914.	Pegasus	September 20, 1914.

Destroyers.

Maori	May 7, 1915.	Recruit	May 1, 1915.

Submarines.

AE 1	September 15, 1914.	E 3	October 18, 1914.
AE 2	May, 1915.	E 15	April 15, 1915.
D 5	November 3, 1914.		

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A reference is now given in the ship tables to the plates in which diagrams of the ships appear.

The following abbreviations are used throughout the Alphabetical List:—

a.c. Armoured cruiser.
a.g.b. Armoured gunboat.
b. Battleship.
b.cr. Battle-cruiser.
l.cr. Light cruiser.
Flot. ldr. Flotilla leader.
c.d.s. Coast-defence ship.
comp. (in armour column). Compound or steel-faced armour.
cr. Cruiser.
A.A. Anti-aircraft guns.
d.v. Despatch vessel.
g.b. Gunboat.
g.v. Gun-vessel.
H.S. Harveyised or similar hard-faced steel.
K.S. Krupp steel.
shd. Sheathed.
P. Protected.
t. Turret-ship (in class column).
t. Speed and I.H.P. at trials (in speed and I.H.P. columns).
to.cr. Torpedo-cruiser.
to.g.b. Torpedo-gunboat.

l. Light guns under 15 cwt., including boats' guns.
M. Machine guns.
sub. Submerged torpedo tube.
A. Armstrong guns.
K. Krupp guns.

The following abbreviations are used to distinguish the various types of boilers:—

W.T. Water-tube boilers, where the type is not known.
B. Belleville.
Bl. Blechynden.
B. & W. Babcock and Wilcox.
D'A. D'Allest.
D. Dürr.
E. Earle.
Ex. Express.
Du T. Du Temple.
L. Laird.
L.N. Laird-Normand.
M. Mumford.
My. Myabara.
Nic. Niclausse.
Nor. Normand.
N.S. Normand-Sigaudy.
R. Reed.
T. Thornycroft.
T.S. Thornycroft-Schulz.
W.F. White-Forster.
Y^1. Yarrow small tube.
Y^2. Yarrow large tube.
V.E. Vickers Express.
cyl. Cylindrical.

The following abbreviations distinguish types of turbines:—

P.T. Parsons.
S. Schneider.
C.T. Curtis.

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GREAT BRITAIN.—Armoured Ships.

Class	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Makers of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour: Belt.	Armour: Deck.	Armour: Side above Belt.	Armour: Bulkhead.	Armour: Gun Position. Heavy Guns.	Armour: Gun Position. Secondary.	Armament. Guns	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons	ft.	ft.	ft.						£	in.	in.	in.	in.	in.	in.			knots.	tons.	
a.c.	**Achilles** . *Pl. 14.*	13,550	480	73½	27	23,275 Y² & cyl.	Elswick .	Hawthorn	1905	1907	1,191,103*	6–4–3 K.S.	¾–1	6	6	6	6	6 *9·2-in.*, 4 *7·5-in.*, 24 *3-pr.*, 2 M.	3	23·27 *t*	1000	704
b.	**Africa** *Pl. 8.*	16,350	425	78	26¾	18,698 B. & W. & cyl.	Chatham	J. Brown .	1905	1906	1,461,429*	9 H.S.	2–1	8–7	12 H.S.	12–6 H.S.	7 K.S.	4 *12-in.*, 4 *9·2-in.*, 10 *6-in.*, 12 *12-pr.*, 12 *3-pr.*, & M.	4	18·95 *t*	950 / 2150	825
b.	**Agamemnon** . *Pl. 8.*	16,500	410	79½	27	17,285 Y²	Dalmuir .	Hawthorn Leslie	1906	1908	1,651,289*	12–6 K.C.	2	8	8	12	7	4 *12-in.*, 10 *9·2-in.*, 24 *12-pr.*, 2 *3-pr.* & 5 M.	5	18·75 *t*	900 / 2500	865
b.	**Agincourt** (ex-Osman I.) *Pl. 4.*	27,500	637	89	27	32,000 B. & W.	Elswick .	Vickers P.T.	1913	1914	..	9–4 K.S.	2–1	..	6 K.S.	9 K.S.	6 K.S.	14 *12-in*, 20 *6-in.*, 10 *12-pr.*	3 sub.	22	1500 / 500	1100
b.	**Ajax** . *Pl. 3.*	23,000	555	89	27½	28,000 B. & W.	Greenock	Scott P.T.	1912	1913	1,937,631*	12–6	..	9	..	10	..	10 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*	3	22 *t*	900	900
b.	**Audacious** *Pl. 3.*					28,200 Y²	Birkenh'd	Cammell Laird P.T.	1912	1913	1,965,307*											
b.	**Albemarle** . *Pl. 9.*	14,000	405	75½	26½	18,296 B.	Chatham	Thames Ironworks	1901	1903	1,009,835	7–3 K.S.	2–1	7	7 K.S.	11 K.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 2 *3-pr.*, & M.	4	18·6 *t*	900 / 2000	750
b.	**Albion** . *Pl. 10.*	12,950	390	74	26	13,885 B.	Blackwall	Maudslay .	1898	1902	858,745	6–2 H.N.	3–1	6	12–8 H.N.	12–6 H.N.	5 H.N.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 6 *3-pr.*, & M.	4	17·8 *t*	800 / 2300	700
a.c.	**Antrim** . *Pl. 15.*	10,850	450	68½	25	21,604 Y. & cyl.	Clydeb'nk	J. Brown	1903	1905	906,335*	6–2 H.N.	2–¾	..	4½ H.N.	6 H.N.	6 H.N.	4 *7·5-in.*, 6 *6-in.*, 20 *3-pr.*, 2 M.	2	23·02 *t* / 22·38 *t*	800 / 1950	655
a.c.	***Argyll*** (1) *Pl. 15.*					21,190 B. & W. & cyl.	Greenock	Greenock Foundry	1904	1906	906,308*											
a.c.	**Bacchante** shd. *Pl. 17.*	12,000	440	69½	26¼	21,520 B.	Clydeb'nk	J. Brown	1901	1902	787,230	6–2 K.S.	3–1½	..	5 H.N.	6 K.S.	5	2 *9·2-in.*, 12 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 8 M., 2 l.	2	21·75 *t*	800 / 1600	755
b.	**Barham**‡ . .	27,500	600	90½	28¾	60,000	Clydeb'nk	J. Brown P.T.	Bldg.	..	..	13	..	.	..	10	..	8 *15-in.*, 12 *6-in.* . .	..	25	Oil	..

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b.	**Bellerophon** *Pl.* 7.	18,600	490	82	27	23,000 B. & W.	Portsm'th	Fairfield P.T.	1907	1909	1,765,342*	11–6–4 K.C.	..	8	..	11 K.C.	..	10 *12-in*, 16 *4-in.*, 4 *3-pr* & M.	3	21·80 *t*	900	780
b.	**Benbow** *Pl.* 1.	25,000	580	90	28	29,000	Dalmuir	Beardmore P.T.	1913	..	2,027,115	12	..	9–8	..	..	..	10 *13·5-in*, 12 *6-in*, 2 *3-in.* A.A., 4 *3-pr.*	4	21	900	..
a.c.	**Berwick** *Pl.* 16.	9800	440	66	24½	22,681 Nic.	W. Beardmore & Co.	Humphrys	1902	1903	750,984	4–2 H.S.	2¾	..	5 N.S.	5–4 N.S.	4 N.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 9 M.	2	23·61 *t*	800 / 1600	537
a.c.	**Black Prince** *Pl.* 15.	13,550	480	73½	27	23,939 B&W&cyl	Blackwall	Thames Ironworks	1904	1906	1,193,414*	6–4–3 K.S.	¾–1	6	6	6	6	6 *9·2-in.*, 10 *6-in.*, 20 *3-pr.*, 2 M.	3	23·65 *t*	1000 / 2000	704
b.	**Britannia** *Pl.* 8.	16,350	425	78	26¾	18,725 B&W&cyl	Portsm'th	Humphrys	1904	1906	1,450,757*	9 H.S.	2–1	8–7	12 H.S.	12–6 H.S.	7 K.S.	4 *12-in.*, 4 *9·2-in.*, 10 *6-in.*, 12 *12-pr.*, 12 *3-pr.*, M.	4	18·74 *t*	950 / 2150	825
b.	**Cæsar** *Pl.* 11.	14,900	390	75	27½	12,000	Portsm'th	Maudslay	1896	1897	885,212	9 H.S.	4–2½	9	14–9 H.S.	14–6 H.S.	6 H.S.	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 4 *3-pr.*, 2 M., 2 l.	5	18·7 *t*	900 / 2000	757
b.	**Canada** (*ex* Almirante Latorre) *Pl.* 2.	28,000	625	92	28½	37,000	Elswick	J. Brown P.T.	1913	1915	..	9–6	4–2½	4½	..	10	6	10 *14-in.*, 16 *6-in.*, 4 *3-in.*, & M.	4 (sub.)	23	1200	1000
b.	**Canopus** *Pl.* 10.	12,950	390	74	26	13,500 B.	Portsm'th	Greenock Foundry	1897	1899	866,516	6 H.N.	3–1	6 H.N.	12 H.N.	12–5 H.N.	5 H.N.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 6 *3-pr.*, & M.	4	18·5 *t*	800 / 1850	700
a.c.	**Carnarvon** *Pl.* 15.	10,850	450	68½	25	21,489 Nic.&cyl.	Beardm're	Humphrys	1903	1905	890.840*	6–2 K.S.	2–¾	..	4½ K.S.	6 N.S.	6	4 *7·5-in.*, 6 *6-in.*, 20 *3-pr.*, 2 M.	2	23·3 *t*	800	655
b.	**Centurion** *Pl.* 3.	23,000	555	89	27½	28,200 Y²	Devonp'rt	Hawthorn P.T.	1911	1913	1,939,648*	12–6	..	9	..	10	..	10 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*	3	22 *t*	900	900
a.c.	**Cochrane** *Pl.* 14.	13,550	480	73½	27	23,654 Y² & cyl.	Govan	Fairfield	1905	1907	1,193,121*	6–4–3 K.S.	¾–1	6	6	6	6	6 *9·2-in.*, 4 *7·5-in.*, 24 *3-pr.*, 2 M.	3	23·29 *t*	1000	704
b.	**Collingwood** *Pl.* 7.	19,250	500	84	27	24,500 Y²	Devonp't	Hawthorn P.T.	1908	1910	1,731,640*	10–6–4	¾–1¾	8	..	9	..	10 *12-in.*, 18 *4-in.*, 4 *3-pr.*, 5 M.	3	21·5 *t*	900	724
b.	**Colossus** *Pl.* 6.	20,000	510	85	27	25,000 B. & W.	Greenock	Scott P.T.	1910	1911	1,672,663*	11–3	2½	8	..	11	..	10 *12-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	3	21·5 *t*	900	780
b.	**Commonwealth** *Pl.* 8.	16,350	425	78	26¾	18,538 B&W&cyl	Govan	Fairfield	1903	1905	1,481,811*	9 H.S.	2–1	8–7	12 H.S.	12–6 H.S.	7 K.S.	4 *12-in.*, 4 *9·2-in.*, 10 *6-in.*, 12 *12-pr.*, 12 *3-pr.*, M.	4	19·01 *t*	950 / 2150	825
b.	**Conqueror** *Pl.* 3.	22,500	545	88½	27½	29,835 B. & W.	Dalmuir	Beardmore P.T.	1911	1912	1,885,295*	12	..	9	..	10	..	10 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	3	22·12	900 / 2700	800

* Total estimated cost of ship including guns.

‡ Particulars unofficial.

(1) Lost by stranding in North Sea, October 28, 1915.

GREAT BRITAIN.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.	in.	in.	in.	in.			knots	tons.	
a.c.	Cornwall *Pl. 16.*	9800	440	66	24½	22,699 B. & W.	Pembroke	Hawthorn	1902	1904	756,274	4–2 H.S.	2–¾	..	5 N.S.	5–4 N.S.	4 N.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 9 M.	2	23·68 *t*	800/1600	537
b.	Cornwallis *Pl. 9.*	14,000	405	75½	26½	18,238 B.	Blackwall	Thames S. Co.	1901	1904	1,030,302	7 K.S.	2–1	7	14 K.S.	11–6 K.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 2 *3-pr.*, & M.	4	18·9 *t*	900/2000	750
a.c.	Cumberland *Pl. 16.*	9800	440	66	24½	22,000 B.	Glasgow	London & Glasgow Co.	1902	1904	718,168	4–2 K.S.	2–¾	..	5	5–4	4 N.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 9 M.	2	23·68 *t*	800/1000	537
a.c.	Defence *Pl. 14.*	14,600	490	74½	26	27,570 Y²	Pembroke	Scotts S. & E. Co.	1907	1909	1,383,744*	6–4	1–½	3	..	8	7	4 *9·2-in.*, 10 *7·5-in.*, 16 *12-pr.*, 5 M.	5	23·5 *t*	1000	850
a.c.	Devonshire *Pl. 15.*	10,850	450	68½	25	21,475 Nic. & cyl.	Chatham	Thames Ironworks	1904	1905	850,877*	6–2	2–¾	..	4½ K.S.	6 N.S.	6	4 *7·5-in.*, 6 *6-in.*, 20 *3-pr.*, 2 M.	2	22·97 *t*	800/1600	655
b.	Dominion *Pl. 8.*	16,350	425	78	26¾	18,438 B. & W. & cyl.	Barrow	Vickers	1903	1905	1,455,190*	9 K.S.	2–1	8–7 K.S.	12 K.S.	12–6 K.S.	7	4 *12-in.*, 4 *9·2-in.*, 10 *6-in.*, 12 *12-pr.*, 12 *3-pr.*, M.	4	19·5 *t*	950/2150	825
a.c.	Donegal *Pl. 16.*	9800	440	66	24½	22,173 B.	Govan	Fairfield Co.	1902	1903	715,947	4–2 K.S.	2–¾	..	5 K.S.	5–4	4 K.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 9 M.	2	23·56 *t*	800/1600	537
a.c.	Drake *Pl. 16.*	14,100	500	71	26	31,450 B.	Pembroke	Humphrys	1901	1902	1,002,977	6 K.S.	3–2	..	5 K.S.	6–5 K.S.	5 K.S.	2 *9·2-in.*, 16 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 2 M.	2	24·11 *t*	1250/2500	900
b.	Dreadnought *Pl. 7.*	17,900	490	82	26½	27,500 B. & W.	Portsm'th	Vickers P. T.	1906	1906	1,813,100*	11–6–4 K.C.	2¾–1¾	8	..	11	..	10 *12*-in., 24 *12-pr.* Q.F., 5 M.	5	21·85 *t*	900/2700	770
a.c.	Duke of Edinburgh *Pl. 15.*	13,550	480	73½	27	23,685 B. & W. & cyl.	Pembroke	Hawthorn Leslie	1904	1906	1,201,687*	6–4–3 K.S.	¾–1	6	6	6	6	6 *9·2-in.*, 10 *6-in.*, 20 *3-pr.*, 2 M.	3	22·84 *t*	1000	704
b.	Duncan *Pl. 9.*	14,000	405	75½	26½	18,222 B.	Blackwall	Thames S. Co.	1901	1903	1,023,147	7 K.S.	2–1	7	14 K.S.	11–6 K.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 2 *3-pr.*, & M.	4	18·9 *t*	900/2000	750
b.	Emperor of India *Pl. 1.*	25,000	580	90	28	29,000	Barrow	Vickers	1913	..	2,020,017	12	..	9–8	..	..	..	10 *13·5-in.*, 12 *6-in.*, 2 *3-in.*, A.A., 4 *3-pr.*	4	21	900	..

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b.	Erin . . Pl. 5.	23,000	525	91	..	31,000	Barrow .	Vickers P.T. .	1913	1914	..	12–6	3	9–8	12	12	5	10 *13·5-in.*, 16 *6-in.* . .	5 (sub.)	21	..	..
a.c.	Essex . Pl. 16.	9,800	440	66	24½	22,000 B.	Pembroke	J. Brown .	1901	1903	739,946	4–2 K.S.	2–¾	..	5	5	4 K.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 8 M., 2 l.	2	22·79 *t*	800/1600	537
a.c.	Euryalus . shd. Pl. 17.	12,000	440	69½	26¼	21,318 B.	Barrow .	Vickers .	1901	1904	782,901	6 K.S.	3–2	2	5 K.S.	6 K.S.	5 K.S.	2 *9·2-in.*, 12 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 8 M.	2	21·63 *t*	800/1600	755
b.	Exmouth . . Pl. 6.	14,000	405	75½	26½	18,346 B.	Birkenh'd	Laird .	1901	1903	1,032,409	7 K.S	2–1	7	14 K.S.	11–6 K.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 2 *3-pr.*, & M.	4	19·0	900/2000	750
b.	Glory . . Pl. 10.	12,950	390	74	26	13,500 B.	Birkenh'd	Laird .	1899	1901	841,014	6 H.N.	3–2	6 H.N.	12 H.N.	12–5 H.N.	5 H.N.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 6 *3-pr.*, & M.	4	18·12 *t*; 18·4 *t*	800/1850	700
a.c.	Hampshire . Pl. 15.	10,850	450	68½	25	21,508 Y. & cyl.	Elswick .	Hawthorn.	1903	1905	866,527*	6–2 K.S.	2–¾	..	5 K.S.	5–4 N.S.	..	4 *7·5-in.*, 6 *6-in*, 20 *3-pr.*, 2 M.	2	23·47 *t*	800/1600	655
b.	Hannibal . . Pl. 11.	14,900	390	75	27½	12,000	Pembroke	Harland .	1896	1897	906,799	9 H.S.	4–2½	9	14–9 H.S.	14–6 H.S.	6 H.S.	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 4 *3-pr.*, 2 M., 2 l.	5	18·0 *t*	900/2200	757
b.	Hercules . . Pl. 6.	20,000	510	85	27	25,700 Y²	Jarrow .	Palmer P.T. .	1910	1911	1,660,950*	11–3	2½	8	..	11	..	10 *12-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	3	21·5 *t*	900	780
b.	Hibernia . Pl. 8.	16,350	425	78	26¾	18,000 B.&W. & cyl.	Devonp'rt	Harland & Wolff	1905	1906	1,444,828*	9 H.S.	2–1	8–7	12 H.S.	12–6 H.S.	7 K.S.	4 *12-in.*, 4 *9·2-in.*, 10 *6-in.*, 12 *12-pr.*, 12 *3-pr.*, & M.	4	19·0 *t*	950/2150	825
b.	Hindustan Pl. 8.					18,521 B.&W. & cyl.	Clydeb'nk	J. Brown .	1903	1905	1,454,526*	9 K.S.	2–1	8–7	12 K.S.	12–6 N.S.	7 N.S.			19·01 *t*		
b.	Illustrious . Pl. 11.	14,900	390	75	27½	12,000	Chatham	Penn .	1896	1898	894,585	9 H.S.	4–2½	9	14–9 H.S.	14–6 H.S.	6 H.S.	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 4 *3-pr.*, 2 M., 2 l.	5	16·5 *t*	900/2200	757
b.	Implacable . Pl. 10.	15,000	400	75	26¾	15,000 B.	D'port	Laird	1899	1902	989,116	9 K.S.	3–2	2	12 K.S.	12–5 K.S.	6	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 2 *3-pr.*, & M.	4	18·2 *t*	900/2000	781
b.c.	Invincible	17,250	530	78½	26	41,000 Y²	Elswick.	Humphrys P.T.	1907	1909	1,768,995*	7–4 K.C.	..	3	..	7	..	8 *12-in.*, 16 *4-in.*, 5 M. .	5	26	1000	780
b.c.	Inflexible					41,000 Y²	Clydeb'k	J. Brown P.T.	1907	1908	1,728,229*											
b.c.	Indomitable Pl. 13.					41,000 B. & W.	Govan .	Fairfield P.T.	1907	1908	1,761,080*											

* Total estimated cost of ship including guns.

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GREAT BRITAIN.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.	in.	in	in.	in.			knots.	tons.	
b.c.	Indefatigable . *Pl.* 13.	18,750	555	80	26½	43,000 B. & W.	Devonp'rt	J. Brown P.T.	1909	1911	1,536,769*	7–4	..	3	..	7	..	8 *12-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	2	25	1000	790
b.	Iron Duke . *Pl.* 1.	25,000	580	90	28	30,000	Portsm'th	Cammell Laird P.T.	1912	1914	2,080,918	12	..	9–8	..	..	..	10 *13·5-in.*, 12 *6-in.*, 2 *3-in.* A.A., 4 *3-pr.*	4	22 *t*	900	..
b.	Jupiter . *Pl.* 11.	14,900	390	75	27½	12,000	Clydeb'nk	Thomson .	1895	1897	902,011	9 H.S.	4–2½	9	14–9 H.S.	14–6 H.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 4 *3-pr.*, 2 M., 2 l.	5	18·4 *t*	900 2200	757
a.c.	Kent . *Pl.* 16.	9800	440	66	24½	21,000 B.	Portsm'th	Hawthorn	1901	1903	700,283	4–2 K.S.	2–¾	..	5 K.S.	5–4 N.S.	4 K.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 8 M., 2 l.	2	21·7 *t*	800 1600	537
b.	*King Edward VII.* (1) *Pl.* 8.	16,350	425	78	26¾	18,138 B. & W. & cyl.	Devonp'rt	Harland .	1903	1905	1,473,245*	9 K.S.	2–1	8–7 K.S.	12 K.S.	12–6 N.S.	7	4 *12-in.*, 4 *9·2-in.*, 10 *6-in.*, 12 *12-pr.*, 12 *3-pr.*, M.	4	19·04 *t*	950 1200	825
b.	King George V. . *Pl.* 3.	23,000	555	89	27½	28,005 B. & W.	Portsm'th	Parsons P.T.	1911	1912	1,965,413*	12–6	..	9	..	10	..	10 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*	3	22 *t*	900	900
a.c.	King Alfred *Pl.* 16.	14,100	500	71	26	30,893	Barrow .	Vickers	1901	1903	978,125	6-5-4 K.S.	2½–1	..	5 K.S.	6–5 K.S.	5 K.S.	2 *9·2-in.*, 16 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 2 l.	2	23·46 *t*	1250	900
a.c.	Leviathan . *Pl.* 16.					31,203 B.	Clydeb'nk	J. Brown			1,012,959									23·28 *t*	2500	
a.c.	Lancaster . *Pl.* 16.	9800	440	66	24½	22,000 B.	Elswick .	Hawthorn	1902	1904	732,858	4–2 K.S.	2–¾		5 K.S.	5–4 N.S.	4 K.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 9 M.	2	24·01 *t*	800 1600	537
b.c.	Lion . *Pl.* 12.	26,350	660	88½	28	75,685 Y²	Devonport	Vickers P.T.	1910	1912	2,086,458*	9	..	6	..	9	..	8 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	2	28·5 *t*	3000	980
b.	London . *Pl.* 10.	15,000	400	75	26½	15,000 B.	Portsm'th	Earle .	1899	1902	1,036,393	9 K.S.	3–2	2	12 K.S.	12–5 K.S.	6	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 2 *3-pr.*, & M.	4	18·1 *t*	900 2000	781
b.	Lord Nelson . *Pl.* 8.	16,500	410	79½	27	16,750 B. & W	Jarrow .	Palmer .	1906	1908	1,654,098*	12-6 K.C.		8	8	12	..	4 *12-in.*, 10 *9·2-in.*, 24 *12-pr.*, 2 *3-pr.*, 5 M.	5	18·9 *t*	900 2200	747

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b.	**Malaya**¶	27,500	600	90½	28¾	..	Walker	Wallsend	Bldg.	..	..	13	..	..	..	10	..	8 *15-in.*, 12 *6-in.*	..	25	Oil	..
b.	**Magnificent** *Pl.* 11.	14,900	390	75	27½	12,000	Chatham	Penn	1894	1895	908,789	9 H.S.	4–2½	9	14–9 H.S.	14–6 H.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 4 *3-pr.*, 2 M., 2 l.	5	17·6 *t* / 17·7 *t*	900 / 2200	757
b.	**Mars** *Pl.* 11.	14,900	390	75	27½	12,000	Birkenh'd	Laird	1896	1897	902,402											
b.	**Marlborough** *Pl.* 1.	25,000	580	90	28	29,000	Devonport	Hawthorn P.T.	1912	1914	2,043,437	12	..	9–8	..	..	..	10 *13·5-in.*, 12 *6-in.*, 2 *3-in.* A.A., 4 *3-pr.*	4	22 *t*	900	..
a.c.	**Minotaur** *Pl.* 14.	14,600	490	74½	26	27,856 Y²	Devonp'rt	Harland & Wolff	1906	1908	1,438,065*	6–4	1–½	6	..	8	7	4 *9·2-in.*, 10 *7·5-in.*, 16 *12-pr.*, 5 M.	5	23·01 *t*	1000	850
b.	**Monarch** *Pl.* 3.	22,500	545	88½	27½	28,555 Y²	Elswick	Hawthorn P.T.	1911	1912	1,886,912*	12	..	9	..	10	..	10 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*	3	21·88 *t*	900 / 2700	800
a.c.	***Natal*** (2) *Pl.* 14.	13,550	480	73½	27	23,592 Y² & Cyl.	Barrow	Shipbg. Co. Vickers	1905	1907	1,218,244*	6–4–3 K.S.	¾–1	6	6	6	6	6 *9·2-in.*, 4 *7·5-in.*, 24 *3-pr.*, 2 M.	3	23·33 *t*	1000	704
b.	**Neptune** *Pl.* 6.	19,900	510	85	27	27,721 Y²	Portsm'th	Harland & Wolff† P.T.	1909	1911	1,715,258*	11–3	2½	8	..	11	..	10 *12-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	3	21·78 *t*	900	780
b.c.	**New Zealand**‡ *Pl.* 13.	18,800	555	80	26½	46,894 B. & W.	Govan	Fairfield P.T.	1911	1912	(‡)	..	..	..	..	..	..	8 *12-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	2	25	1000	780
b.	**Orion** *Pl.* 3.	22,500	545	88½	27½	29,108 B. & W.	Portsm'th	Wallsend P.T.	1910	1911	1,918,773*	12	..	9	..	10	..	10 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	3	21·02 *t*	900 / 2700	800
b.	**Prince George** *Pl.* 11.	14,900	390	75	27½	12,000	Portsm'th	Humphrys	1895	1896	895,504	9 H.S.	4–2½	9	14–9 H.S.	14–6 H.S.	6	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 4 *3-pr.*, 2 l.	5	18·3 *t*	900 / 2200	757
b.	**Prince of Wales** *Pl.* 10.	15,000	400	75	26¾	15,000 B.	Chatham	Greenock Foundry	1902	1904	1,114,079	9 K.S.	2–1	3	12 K.S.	12–6 N.S.	6–2 K.S.	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 2 *3-pr.*, & M.	4	18·0	900	781
b.c.	**Princess Royal** *Pl.* 12.	26,350	660	88½	28	76,510 Y²	Barrow	Vickers P.T.	1911	1912	2,092,214*	9	..	6	..	9	..	8 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	2	28·5 *t*	3000	980
b.	**Queen** *Pl.* 10.	15,000	400	75	26¾	15,000 B & W.	Devonport	Harland & Wolff	1902	1904	1,074,999	9 K.S.	2–1	3	12 K.S.	12–6 N.S.	6–2 K.S.	4 *12-in.*, 12 *6-in.*, 18 *12-pr.*, 4 *3-pr.*, & M.	4	18·39 *t*	900	781
b.c.	**Queen Mary** *Pl.* 12.	27,000	660	89	28	78,700	Jarrow	J. Brown P.T.	1912	..	2,078,491*	9	..	6	..	9	..	8 *13·5-in.*, 16 *4-in.*, 4 *3-pr.*, 5 M.	2	28 *t*	3000	1000
b	**Queen Elizabeth**¶	27,500	600	90½	28¾	60,000	Portsm'th	Wallsend P.T.	1913	..	..	13	..	..	..	10	..	8 *15-in.*, 12 *6-in.*	..	25	Oil	..

* Estimated cost of ship including guns. † By arrangement with John Brown & Co. ‡ Built at the charge of the New Zealand Government. ¶ Particulars unofficial.
(1) Sunk by mine in the North Sea, January 9, 1916. (2) Blown up by internal explosion, December 30, 1915.

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GREAT BRITAIN.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	Ramillies ¶						Dalmuir	Beardmore, P.T.														
b.	Resolution ¶						Jarrow	Palmer P.T.														
b.	Revenge ¶	25,750	580	..	..	..	Barrow	Vickers P.T.	Bldg.	..	..	13	..	..	..	10	..	8 *15-in.*, 12 *6-in.*	..	21	..	..
b.	Royal Oak ¶						Devonp'rt	Hawthorn P.T.														
b.	Royal Sovereign ¶						Portsm'th	Parsons P.T.														
a.c.	Roxburgh. *Pl. 15.*	10,850	450	68½	25	22,102 D. & cyl.	Glasgow	London & Glasgow Company	1904	1905	862,077*	6–2 K.S.	2–¾	..	4½ K.S.	6 N.S.	6	4 *7·5-in.*, 6 *6-in.*, 20 *3-pr.*, 2 M.	2	23·63 *t*	800 1600	655
b.	***Russell* (1)** *Pl. 9.*	14,600	405	75½	26½	18,229 B.	Jarrow	Palmer	1901	1903	1,037,995	7 K.S.	2·1	7 K.S.	14 K.S.	11–6 K.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 2 *3-pr.*, & M.	4	19·3 *t*	900 2000	750
b.	**St. Vincent** *Pl. 7.*	19,250	500	84	27	24,500 B. & W.	Portsm'th	Scott's S. P.T.	1908	1910	1,754,615*	10	¾–1¾	8	..	9	..	10 *12-in.*, 18 *4-in.*, 4 *3-pr.*, 5 M.	3	21·9 *t*	900	780
a.c.	**Shannon** *Pl. 14.*	14,600	490	75½	25	28,553 Y²	Chatham	Humphrys	1906	1908	1,423,410*	6–4	1–½	3	..	8	..	4 *9·2-in.*, 10 *7·5-in.*, 16 *12-pr.*, 5 M.	5	22·49 *t*	950	850
a.c.	**Suffolk** *Pl. 16*	9800	440	66	24½	22,000 Nic.	Portsm'th	Humphrys	1903	1904	722,681	4–2 K.S.	2–¾	..	5 K.S.	5–4 N.S.	4 K.S.	14 *6-in.*, 8 *12-pr.*, 3 *3-pr.*, 9 M.	2	24·7 *t*	800 1600	537
a.c.	**Sutlej** shd. *Pl. 17.*	12,000	440	69½	26¼	21,261 B.	Clydeb'nk	J. Brown	1899	1902	755,690	6 K.S.	3–2	..	5 K.S.	6 K.S	5 K.S.	2 *9·2-in.*, 12 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 8 M., 2 l.	2	21·77 *t*	800 1600	755
b	**Superb** *Pl. 7.*	18,600	490	82	27	23,000 B. & W.	Elswick	Wallsend P. T.	1907	1909	1,660,446*	11-6-4 K.C.	..	8	..	11 K.C.	..	10 *12-in.*, 16 *4-in.* B.L., 4 *3-pr.*, 5 M.	3	21·6 *t*	900	870
b.	**Temeraire.** *Pl. 7.*					23,000 Y²	Devonp'rt	Hawthorn. P. T.	1907	1909	1,743,955*									22·07 *t*		
b.	**Swiftsure** . *Pl. 9.*	11,800	436	71	24½	12,500	Elswick	Humphrys, Tennant	1903	1904	845,036	7	3	7	..	10	7 K.S.	4 *10-in.*, 14 *7·5 in.*, 14 *14-pr.*, 4 *6-pr.*, & M.	2	19·6 *t*	800 2000	700

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b.	**Thunderer** *Pl. 3.*	22,500	545	88½	27½	27,604 B. & W.	Blackwall	Thames Ironworks P. T.	1911	1912	1,889,920*	12	..	9	..	10	..	10 *13·5-in.*, 16 *4-in.*, 4 *3 pr.*, 5 M.	3	21	900 / 2700	800
b. c.	**Tiger** ¶	28,000	660	90½	28¼	100,000	Clydeb'nk	J. Brown C. T.	1913	..	..	..	..	..	..	..	..	8 *13 5-in*, 12 *6-in.*	..	28	3000	..
b.	**Valiant** ¶	27,500	600	90½	28¾	60,000	Govan	Fairfield P.T.	Bldg.	..	..	13	..	..	..	10	..	8 *15-in.*, 12 *6-in*	..	25	Oil	..
b.	**Vanguard** *Pl. 7.*	19,250	500	84	27	24,500 B. & W.	Barrow	Vickers P. T.	1909	1910	1,607,781*	10	¾–1¾	8	..	9	..	10 *12-in.*, 18 *4-in.*, 4 *3-pr.*, 5 M.	3	22·1 *t*	900	724
b.	**Venerable.** *Pl. 10.*	15,000	400	75	26	15,345 B.	Chatham	Maudslay	1899	1902	1,092,753	7 K.S.	4–2½	3	14 K.S.	11–6 K.S.	6–2	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 2 *3-pr.*, & M.	4	18·3 *t*	900 / 2000	781
b.	**Vengeance** *Pl. 10.*	12,950	390	74	26	13,500 B.	Barrow	Vickers	1899	1901	836,417	6 K.S.	2–1	6	12 K.S.	12–6 K.S.	5 K.S.	4 *12-in.*, 12 *6-in.*, 10 *12-pr.*, 6 *3-pr.*, & M.	4	18·5 *t*	800 / 1850	750
b.	**Victorious** *Pl. 11.*	14,900	390	75	27½	12,000	Chatham	Hawthorn	1895	1897	885,212	9 H.S.	3–2½	9	14–9 H.S.	14–6 H.S.	6	4 *12-in.*, 12 *6-in.*, 16 *12-pr.*, 4 *3-pr.*, 8 M., 2 l.	5 (4 sub.)	18·7 *t*	900 / 2200	757
a.c.	**Warrior** *Pl. 14.*	13,550	480	73½	27	23,641 Y² & cyl.	Pembroke	Wallsend	1905	1907	1,186,395*	6–4–3 K.S.	¾–1	6	6	6	6	6 *9·2-in.*, 4 *7·5-in.*, 24 *3-pr.*, 2 M.	3	22·9 *t*	1000	704
b.	**Warspite** ¶	27,500	600	90½	28¾	60,000	Devonp'rt	Hawthorn P.T.	1913	..	..	13	..	..	..	10	..	8 *15-in.*, 12 *6-in.*	..	25	Oil	..
b.	**Zealandia.** (*ex* New Zealand.) *Pl. 8.*	16,350	425	78	26¾	18,440 Nic. & Cyl.	Portsm'th	Humphrys	1904	1905	1,424,375*	9 K.S.	2–1	8–7 K.S.	12 K.S.	12–6 K.S.	7	4 *12-in.*, 4 *9·2-in.*, 10 *6-in.*, 12 *12-pr.*, 12 *3-pr.*, M.	4	18·59 *t*	950 / 2150	825

* Total estimated cost of ship, including guns.

¶ Particulars unofficial.

(1) Sunk by mine in the Mediterranean, April 27, 1916.

N.B.—For a note on the monitor classes, see page 131.

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GREAT BRITAIN.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.			knots.	tons.	
P. 3rd cl. Cr.	**Active** . .	3440	385	41½	13¾	18,000 Y.	Pembroke	Hawthorn. P.T.	1911	1911	272,977*	..	..	10 *4-in.* B.L., 4 *3-pr.*, and M.	2	26·0 *t*	350	320
Scout. .	**Adventure** .	2670	374	38¼	13½	15,850 Y mod.	Elswick .	Hawthorn.	1904	1905	270,263	2	¾	9 *4-in.* . . .	2	25·42 *t*	227	268
„ „	**Amethyst** . .	3000	360	40	14½	14,200 Y mod.	Elswick .	Parsons P.T.	1903	1905	228,426	..	..	12 *4-in.*, 8 *3-pr.*, M. .	2	23·42 *t*	300	296
P. 1st cl. Cr.	**Amphitrite** shd.	11,000	435	69	25¼	18,000 B.	Barrow .	Vickers .	1898	1900	552,795	4	3–6 H. S.	16 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 2 M.	2 (1 sub.)	20·75	1000	677
„ „	**Argonaut** . shd.	11,000	435	69	25¼	18,000 B.	Govan .	Fairfield .	1898	1900	545,756	4	3–6 H. S.	16 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 2 M.	2 (1 sub.)	20·75	1000	677
L. Cr. .	***Arethusa*** † (1) .	3,750	410	39	13½	30,000	Chatham	Fairfield .	1913	..	..	3	..	2 *6-in.*, 8 *4-in.* . .	2	29	Oil	..
„ .	**Aurora** † .						Devonprt	Parsons .	1913			–						
P. 3rd cl. Cr.	**Astræa** . . shd.	4360	320	49½	19	9112	Devonp'rt	Devonport	1893	1894	254,217	2–1	3	2 *6-in.*, 8 *4·7-in.*, 8 *6-pr.*, 1 *3-pr.*, M.	3	19·75	400	312
Scout . .	**Attentive** . .	2670	374	38¼	13½	16,212 Y.	Elswick .	Hawthorn.	1904	1906	270,263	2	¾	9 *4-in.* . . .	2	25·88 *t*	227	268
P. 3rd cl. Cr.	**Bellona** . .	3360	385	41½	13¾	18,000 Y.	Pembroke	Fairfield . P.T.	1909	1910	283,038*	½–1	..	6 *4-in.* B.L., 4 *3-pr.*, and M.	2	25·9 *t*	450	263
P. 2nd cl.	**Birmingham** .	5440	430	49·10	15·10	26,500	Elswick .	Hawthorn.	1912	1914	353,437*	..	..	9 *6-in.*, 4 *3-pr.* . .	2	25·5	650	..
P. 3rd cl. Cr.	**Blanche** . .	3350	385	41½	13½	18,542 Y.	Pembroke	Hawthorn. P.T.	1909	1910	288,482*	..	..	10 *4-in.* B.L., 4 *3-pr.*, and M.	2	25·67 *t*	350	292

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,, ,,	**Blonde** . .	3350	385	41½	13½	18,770 Y.	Pembroke	Cammell Laird P.T.	1910	1911	267,754*	..	..	10 *4-in.* B.L., 4 *3-pr.*, and M.	2	25·43 *t*	350	292
,, ,,	**Boadicea** . .	3300	385	41	13½	18,000 Y.	Pembroke	J. Brown P.T.	1908	1909	330,631*	½–1	..	6 *4-in.* B.L., 4 *3-pr.*, and M.	2	25·75 *t*	450	263
P. 2nd cl. Cr.	**Bristol** . .	4800	430	47	15¼	24,529 Y.	Clydeb'nk	J. Brown C.T.	1910	1910	364,953*	2–¾	..	2 *6-in.*, 10 *4-in.* B.L., 4 M.	2	26·84	650	376
Flot. ldr. .	**Botha** . / **Broke** .	1850	320	32½	11·1	27,000	East Cowes	White .	1913	1914	..	..	..	6 *4-in.*, 2 M. . .	3	31	500	160
L. Cr. .	**Calliope†** .						Chath'm	Parsons .	Bldg.	..	..	3 –	..	2 *6-in.*, 8 *4-in.* . .	..	29	Oil	..
,, .	**Caroline†** .						Birkenhead	Cammell Laird										
,, .	**Carysfort†** .						Pembroke	Hawthorn.										
,, .	**Champion†**						Newcastle (Hawth'rn)	Hawthorn.										
,, .	**Cleopatra†** .	3800	420	39	13½	30,000	Devonport	Cammell Laird										
,, .	**Comus†** .						Newcastle (Swan Hunter)	Wallsend Engn'g Co.										
,, .	**Conquest†** .						Chatham	Scotts' .										
,, .	**Cordelia†** .						Pembroke	Hawthorn.	1914	..	..	3 –	..	2 *6-in.*, 8 *4-in.* . .	..	29	Oil	..
P. 2nd cl. Cr.	**Challenger** .	5880	355	56	21¼	12,500 B.&W	Chatham	Wallsend Eng'ng Co.	1902	1904	360,194	3–2	..	11 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 2 M.	2	21·0	500	454
P. 3rd cl. Cr.	**Charybdis** shd.	4360	320	49½	19	9000	Sheerness	Earle .	1893	1895	241,029	2–1	2	2 *6-in.*, 8 *4·7-in.*, 8 *6-pr.*, 1 *3-pr.*, M.	3	19·5	400	312
P. 2nd cl. Cr.	**Chatham** . .	5400	430	49¾	15¾	25,901 Y.	Chatham.	Thames Ironworks P.T.	1911	1912	349,358*	3 –	..	8 *6-in.*, 4 *3-pr.*, 4 M., 1 1.	2	25·5	650	400
,, ,,	**Crescent** . shd.	7700	360	60	23¾	12,000	Portsm'th	Penn .	1892	1894	392,453	5–1	6	1 *9·2-in.*, 12 *6-in.*, 12 *6-pr.*, 5 *3-pr.*, M.	2 (1 sub.)	19·7	850	560
,, ,,	**Dartmouth** .	5250	430	48½	15½	23,467 Y.	Barrow .	Vickers P.T.	1911	1911	329,406*	2–¾	..	8 *6-in.*, 4 *3-pr.*, 4 M. .	2	25·9 *t*	650	390
P. 3rd cl. Cr.	**Diamond** . .	3000	360	40	14½	10,066 N. L.	Birkenh'd	Laird .	1904	1905	231,010	..	..	12 *4-in.*, 8 *3-pr.*, M.	2	22·17 *t*	300	296

* Total estimated cost of ship including guns. † Particulars unofficial.

(1) Sunk by mine in the North Sea, February 14, 1916.

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GREAT BRITAIN.—Cruising Ships, &c.—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.			knots.	tons.	
P. 2nd cl. Cr.	Diana . shd.	5600	350	54	21	9600	Govan .	Fairfield .	1895	1898	253,009				3	19·5	550	449
" "	Dido . . shd.	5600	350	54	21	9600	Glasgow .	London and Glasgow Co.	1896	1898	254,190	2½	3	11 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 5 M., 1 l.	3 (2 sub.)	19·5	550	449
" "	Doris . shd.	5600	350	54	21	9600	Barrow .	Vickers .	1896	1898	256,306							
" "	Dublin . .	5400	430	49·10	15¾	25.000 Y.	Dalmuir .	Beardmore P. T.	1912	1913	337,565*	3 / –	..	8 *6-in.*, 1 *12-pr.*, 4 *3-pr.*, 4 M., 1 l.	2	25·5	650	400
" "	Eclipse . shd.	5600	350	53	20¼	9600	Portsm'th	Portsm'th	1894	1897	276,313	1½–3	3	5 *6-in.*, 6 *4·7in.*, 8 *12-pr.*, 1 *3-pr.*, 5 M., 1 l.	3	19·5	550	456
" "	Edgar . .	7350	360	60	23¾	12,000	Devonp'rt	Fairfield .	1890	1893	410,980	5–1	6	2 *9·2-in.*, 10 *6-in.*, 12 *6-pr.*, 5 *3-pr.*, M.	4	20·5	850	544
" "	Endymion .	7350	360	60	23¾	12,000	Hull .	Earle .	1891	1894	375,350	5–1	6	2 *9·2-in.*, 10 *6-in.*, 12 *6-pr.*, 5 *3-pr.*, M.	2	20·5	850	544
P. 1st cl. Cr.	Europa . shd.	11,000	435	69	26	16,500 B.	Clydeb'nk	Thomson	1897	1899	564,690	4–2½	4½–2	16 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 2 M.	2	20·5	1000	357
P. 2nd cl. Cr.	Falmouth . .	5250	430	48½	15½	23,467 Y.	Dalmuir .	Beardmore P. T.	1910	1911	337,473*	2–¾	..	8 *6-in.*, 4 *3-pr.*, 4 M.	2	25·5	650	390
Flot. ldr. .	Faulknor . .	1850	320	32½	11·1	27,000	E. Cowes	White .	1913	1914	..	..	..	6 *4-in.*, 2 M. . .	3	31	500	160
P. 3rd cl. Cr.	Fearless . .	3440	385	41·6	13·9	18,900	Pembroke	Beardmore P. T.	1912	1913	269,855	..	..	10 *4-in.*, 4 *3-pr.*	..	25·5	350	320
" "	Fox . . shd.	4360	320	49½	19	9000	Portsm'th	Portsm'th	1893	1895	245,571	2–1	2	2 *6-in.*, 8 *4·7-in.*, 1 *12-pr.*, 13 *6-pr.*, *3-pr.*, M.	3	19·5	400	312

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Scout	Foresight		2850	360	39	14	14,277 T.	Govan	Fairfield	1904	1905	285,672	$1\frac{1}{2}$–$\frac{5}{8}$	..	9 *4-in.*	2	25·12 *t*	250	268
„	Forward						15,018 T.					285,326					25·15 *t*		
L. Cr.	Galatea†		3750	410	39	$13\frac{1}{2}$	30,000	Dalmuir	Beardmore	1914	..	..	3 –	..	2 *6-in.*, 8 *4-in.*	2	29	Oil	..
P. 2nd cl. Cr.	Gibraltar	shd.	7700	360	60	$23\frac{3}{4}$	12,000	Glasgow	Napier	1892	1894	373,236	5–1	6	2 *9·2-in.*, 10 *6-in.*, 12 *6-pr.*, 5 *3-pr.*, M.	2	19·7	850	544
„ „	Glasgow		4800	430	47	$15\frac{1}{4}$	22,472 *t*	Govan	Fairfield P. T.	1909	1910	354,884*	2–$\frac{3}{4}$	..	2 *6-in.*, 10 *4-in.*, 1 *12-pr.*, 4 *3-pr.*	2	25·8 *t*	650	376
„ „	Gloucester						23,757 *t*	Dalmuir	Beardmore P. T.			353,856*					26·29 *t*		
„ „	Grafton		7350	360	60	$23\frac{3}{4}$	12,000	Blackwall	Humphrys	1892	1894	372,890	..	6	2 *9·2-in.*, 10 *6-in.*, 12 *6-pr.*, 5 *3-pr.*, M.	2	20·0	850	560
„ „	Highflyer	shd.	5600	350	54	$20\frac{1}{2}$	10,000 B.	Govan	Fairfield	1898	1900	280,182	$1\frac{1}{2}$–3	3	11 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 2 M.	2	20·0	600	456
„ „	Hyacinth	shd.	5600	350	54	$20\frac{1}{2}$	10,000 B.	Glasgow	London and Glasgow Co.	1898	1901	288,595							
P. 3rd cl. Cr.	Hermione	shd.	4360	320	$49\frac{1}{2}$	19	9000	Devonp'rt	Thomson	1893	1895	223,324	2–1	2	2 *6-in.*, 8 *4·7-in.*, 8 *6-pr.*, 1 *3-pr.*, M.	3	19·5	400	312
Monitor	Humber		1250	265	49	$4\frac{1}{2}$	..	Barrow	Vickers	1913	1914	..	..	..	2 *6-in.*, 2 *4·7-in.* Howitzers, 4 *3-pr.*, 6 M.	..	$11\frac{1}{2}$	..	100
T. G. B.	Hussar		1070	250	$30\frac{1}{2}$	9	3500	Devonp'rt	Hawthorn	1894	1895	72,313	..	2	1 *4·7-in.*, 2 *6-pr.*, M.	5	19·0	100	120
L. Cr.	Inconstant†		3750	410	39	$13\frac{1}{2}$	30,000	Dalmuir	Beardmore	Bldg.	..	..	3 –	..	2 *6-in.*, 8 *4-in.*	2	29	Oil	..
P. 2nd cl. Cr.	Isis	shd.	5600	350	54	21	9600	Glasgow	London and Glasgow Co.	1896	1898	253,733	$2\frac{1}{2}$	3	11 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 5 M., 1 l.	3 (2 sub.)	19·5	550	449
„ „	Juno	shd.	5600	350	54	21	9600	Barrow	Vickers	1895	1898	256,106							
„ „	Liverpool		4800	430	47	$15\frac{1}{4}$	24,614 Y.	Barrow	Vickers P.T.	1909	1910	344,871*	2–$\frac{3}{4}$	..	2 *6-in.*, 10 *4-in.* B.L., 4 *3-pr.*	2	26·17 *t*	650	376

* Total estimated cost of ship, including guns.

† Particulars unofficial.

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GREAT BRITAIN.—Cruising Ships, &c.—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Makers of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.			knots.	tons.	
P. 2nd cl Cr.	Lowestoft .	5440	430	49	15	22,000	Chatham	Fairfield .	1913	1914	375,162	..	..	9 *6-in.*, 4 *3-pr.*	2	25·5	650	..
Monitor .	Mersey . .	1250	265	49	4½	..	Barrow .	Vickers .	1914	1914	..	..	..	2 *6-in.*, 2 *4·7-in.* Howitzers, 4 *3-pr.*, 6 M.	..	11½	..	100
„ „	Minerva . shd.	5600	350	53	20½	9600	Chatham.	Chatham .	1895	1897	275,331	1½-3	3	11 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 5 M., 1 l.	3 (2 sub.)	19·5	550	416
„ „	Newcastle .	4800	430	47	15¼	24,669 Y.	Elswick .	Wallsend Engineering Co. P.T.	1909	1910	352.610*	2-¾	..	2 *6-in.*, 10 *4-in.* B.L., 4 *3-pr.*	2	26·26 *t*	650	376
„ „	Nottingham .	5440	430	49	15	22,000	Pembroke	Hawthorn	1912	1914	379,013*	..	..	9 *6-in.*, 4 *3-pr.* . .	2	25·5	650	..
P. Scout .	Patrol . .	2940	370	38¾	14	L.N. 16,460	Birkenhd	Laird .	1904	1905	273,523	½-⅝	..	9 *4-in.* . . .	2	25·06 *t*	300	268
P. 3rd cl. Cr.	Pelorus . .	2135	300	36½	17	7000 Nor.	Sheerness	Thomson .	1896	1897	154,315	2	·22	8 *4-in.*, 8 *3-pr.*, M. .	2	20·0	250 517	234
„ „	Psyche . .	2200	305	36¾	17½	7000 T.	Devonp'rt	Devonport	1898	1900	156,890							
„ „	Proserpine .	2135	300	36½	17	7000 T.	Sheerness	Devonport	1896	1899	165,020							
„ „	Pyramus .	2135	300	36½	13½	7000 R.	Jarrow .	Palmer .	1897	1900	135,249							
L. Cr. .	Penelope † .	3750	410	39	13½	30,000	Barrow .	Vickers .	Bldg.	..	..	3 –	..	2 *6-in.*, 8 *4-in.* . .	2	29	Oil	..
.. .	Phaeton † . .	3750	410	39	13½	30,000	Barrow .	Vickers .	Bldg.	..	..	3 –	..	2 *6-in.*, 8 *4-in.* . .	2	29	Oil	..

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P. 3rd cl. Cr.	**Philomel** . .		2575	265	41	15½	7500	Devonp'rt	Earle .	1890	1892	163,699	2–1	2	8 *4·7-in.*, 8 *3-pr.*, M. .	2	19·0	300	217
P. 2nd cl. Cr.	**Royal Arthur**	shd.	7700	360	60	27¾	12,000	Portsm'th	Maudslay .	1891	1893	412,033	5–1	6	1 *9·2-in.*, 12 *6-in.*, 12 *6-pr.*, 5 *3-pr.*, M.	2 (2 sub.)	19·7	850	567
L. Cr. .	**Royalist** † . .		3400	410	39	12½	30,000	Dalmuir .	Beardmore	Bldg.	..	..	3 –	..	2 *6-in.*, 8 *4-in.* . .	2	29	Oil	..
P. 3rd cl. Cr.	**Sapphire** . .		3000	360	40	14½	10,200	Jarrow .	Palmer .	1904	1905	226,277	..	..	12 *4-in.*, 8 *3-pr.*, M. .	2	22·45 *t*	300	296
„ „	**Sappho** . .		3400	300	43	16½	9861	Poplar .	Penn .	1891	1893	176,813	2–1	2	2 *6-in.*, 6 *4·7-in.*, 8 *6-pr.*, 1 *3-pr.*, M.	4	20·47	400	273
P. Scout .	**Sentinel** . .		2895	360	40	14¼	17,488 Nor. V.E.	Barrow .	Vickers .	1904	1905	276,344	1½–⅝	..	9 *4-in.* . . .	2	25·07 *t*	205	268
Monitor .	**Severn** . .		1250	265	49	4½	..	Barrow .	Vickers .	1913	1914	..	..	..	2 *6-in.*, 2 *4·7-in.* Howitzers, 4 *3-pr.*, 6 M.	..	11½	..	100
P. 3rd cl. Cr.	**Sirius** .	shd.	3600	300	43¾	17½	9000	Elswick .	Maudslay .	1890	1892	190,991	2–1	2	2 *6-in.*, 8 *4·7-in.*, 8 *6-pr.*, 1 *3-pr.*, M.	4	19·75	400	273
P. Scout .	**Skirmisher** .		2895	360	40	14¼	17,053 Nor.	Barrow .	Vickers .	1905	1905	276,579	1½–⅝	..	9 *4-in.* . . .	2	25·19	205	268
P. 2nd cl. Cr.	**Southampton** .		5400	430	49·10	15¾	25,000 Y.	Clydeb'nk	J. Brown C.T.	1912	1913	336,469*	3 –	..	8 *6-in.*, 4 *3-pr.*, 4 M., 1 l.	2	25·5	650	400
Flot. ldr. .	**Swift**. . .		1800	345	34⅛	10½	30,000 L.Y.	Birkenh'd	Cammell Laird	1907	1909	241,595*	..	..	4 *4-in.* . . .	..	35·25	180 Oil	150
P. 2nd cl. Cr.	**Talbot** .	shd.	5600	350	53½	21	9600	Devonpr't	Devonport	1895	1897	263,699	1½–3	3	11 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 5 M., 1 l.	3 (2 sub.)	19·5	550	412
P. 1st cl. Cr.	**Terrible** .	shd.	14,200	500	71	27	25,000 B.	Glasgow .	Thomson .	1895	1898	708,619	3–6	6	2 *9·2-in.*, 16 *6-in.*, 14 *12-pr.*, 12 *3-pr.*, 9 M.	4	22·4	1500 3000	840
P. 2nd cl Cr.	**Theseus** . .		7350	360	60	23¾	12,000	Blackwall	Maudslay .	1892	1894	370,359	5–1	6	2 *9·2-in.*, 10 *6-in.*, 12 *6-pr.*, 5 *3-pr.*, M.	2 (2 sub.)	20·0	850	544
Flot. ldr. .	**Tipperary**. .		1850	320	32½	11·1	27,000	E. Cowes.	White .	1914	1914	..	..	..	6 *4-in.*, 2 M. . .	3	31	500	160

* Total estimated cost of ship, including guns.

† Particulars unofficial.

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GREAT BRITAIN.—Cruising Ships, &c.—*continued.*

Class	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.			knots.	tons.	
P. 3rd cl. Cr.	**Topaze** . .	3000	360	40	14½	9860 L.N.	Birkenh'd	Laird .	1903	1905	242,444	..	..	12 *4-in.*, 8 *3-pr.*, M. .	2	22·1 *t*	300	296
L. Cr. .	**Undaunted** † .	3750	410	39	13½	30,000	Govan .	Fairfield .	1914	..	..	..	3	2 *6-in.*, 8 *4-in.* . .	2	29	..	..
P. 2nd cl. Cr.	**Venus** . shd.	5600	350	54	21¼	9600	Govan .	Fairfield .	1895	1898	254,184	2½	3	11 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 5 M., 1 I.	3 (2 sub.)	19·5	550	449
„ „	**Vindictive** .	5750	320	54	20½	10,000 B.	Chatham	Chatham .	1897	1897	282,879	1–2 N.S.	3	10 *6-in.*, 8 *12-pr.*, 1 *3-pr.*, 5 M., 1 I.	2	20·1	500	429
„ „	**Weymouth**	5250	430	48½	15½	22,000 Y.	Elswick	Parsons P. T. .	1910	1911	337,738*	2¾	..	8 *6-in.*, 4 *3-pr.*, 4 M. .	2	25·5 *t*	650	390
„ „	**Yarmouth**						Glasgow	London & Glas. Co. C. T.	1911	1912	353,238*							

* Total cost, including guns. † Particulars unofficial.

River Gunboats.—**Robin, Nightingale, Snipe, Sandpiper** (1897), 85 tons; **Woodcock, Woodlark** (1898), 150 tons, 2 6-prs., 4 Maxims; **Kinsha** (1901), 616 tons, **Teal, Moorhen** (1902), 180 tons, 2 6-prs., 13 knots; **Widgeon** (1905), 195 tons. *Despatch Vessel.*—**Alacrity** (1885), 1,650 tons. *Torpedo Gunboats* (some serving as mine sweepers).—**Circe, Gossamer, Dryad, Halcyon, Harrier, Jason, Leda, Niger, Seagull, Skipjack, Spanker, Speedwell,** and **Speedy.**

There are now on the effective list a large number of warships which had been struck off at different times or even passed into the sale list. They are being used for various purposes as indicated by the official *communiqués.* Many more vessels are employed on special service than were published in the *Naval Annual* of last year; and the "Navy List" of April, 1915, contained a nominal list of some 1,500 vessels taken up for Admiralty service. The work upon which these vessels are engaged is not indicated in that "Navy List," but in those issued earlier in the year it was shown that some had been armed as auxiliary cruisers for the protection of commerce, others were employed on patrol duties, including a number of motor boats, and others were hospital ships, supply ships, &c., while some thousands of trawlers and drifters are being used in connection with the examination service, the mine-sweeping flotillas, and many other duties made necessary by the war.

The following vessels are employed on special service:—**Assistance, Cyclops,** and **Reliance,** fleet repair ships; **Woolwich, Diligence, Blake, Blenheim, Hecla, Leander, St. George,** and **Tyne,** torpedo depot ships; **Maidstone, Adamant, Alecto, Arrogant, Bonaventure, Forth, Mercury, Pactolus, Thames, Vulcan, Dolphin, Onyx, Antelope, Hebe, Sharpshooter,** and **Hazard,** submarine depôt ships; **Aquarius,** distilling vessel; **Iphigenia, Apollo, Naiad, Intrepid, Andromache, Latona,** and **Thetis,** mine-laying vessels; and **Seaflower, Seamew, Sparrow, Spider,** and **Driver,** steam-trawlers for mine-sweeping duties, purchased April, 1909.

N.B.—For a reference to the "mine-laying sloops," see page 131.

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Defence Forces of the Dominions.

AUSTRALIA.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						£	in.	in.			knots.	tons.	
b.c.	**Australia** *Pl.* 13.	18,800	555	80	26½	48,000	Clydebank	J. Brown P.T.	1911	1913	..	..	..	8 *12-in.*, 16 *4-in.*, 5 M.	2	26·0 *t*	1000	790
P. 2nd cl. Cr.	**Melbourne**	5400	430	49½	15¾	25,500	Birkenhead	Cammell Laird	1912	1913	..	..	..	8 *6-in.*, 4 *3-pr.*, 4 M., 1 l.	2	25·5	..	..
„ „	**Sydney**						Glasgow	London & Glasgow Co.	1912	1913								
„ „	**Brisbane**						Sydney	..	1915	..								
„ „	**Encounter**	5880	355	56	20¼	12,500 Dürr	Devonp'rt	Devonport Dockyard	1903	1906	370,275	3-2	..	11 *6-in.*, 9 *12-pr.*, 1 *3-pr.*, 2 M.	2	20·75	600	454
L. Cr.	**Pioneer**	2200	305	36¾	13½	7000 T.	Chatham	Fairfield	1899	1900	148,894	2	·22	8 *4-in.*, 11 *3-pr.*, M.	2	20·0	250/517	234

CANADA.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
P. 1st cl. Cr.	**Niobe**	11,000	435	69	26	16,500	Barrow	Vickers	1897	1899	..	...	..	16 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 2 M.	2	20·5	1000	600
P. 2nd cl. Cr.	**Rainbow** shd.	3600	300	43¾	17½	9000	Jarrow	Palmer	1891	1893	..	..	..	2 *6-in.*, 6 *4·7-in.*, 8 *6-pr.*, 1 *3-pr.*, 4 M., 1 l.	4	19·7	400	273

Both the Royal Australian Navy and Royal Canadian Navy have been amplified since the war. **Kurumba** (oil supply ship) and **Platypus** (submarine depôt ship) are building in Great Britain for the former, to which the German sailing vessel **Komet** was captured and added as the **Una**.

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ARGENTINE REPUBLIC.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
a.c.	Garibaldi . .	6732	328	59¾	24	13,384	Sestri Ponente	1895	1896	752,000	6–3 H.S.	1½	6 H.S.	6 H.S.	6 H.S.	6 H.S.	2 *10-in.*, 10 *6-in.*, 6 *4·7-in.*, 4 *2·2-in.*, 2 M.	2	19·9 *t*	1000	500
a.c.	General Belgrano .	7069	328	59¾	24	13,000	Leghorn .	1897	1899	696,700	6–3 H.S.	1½	6 H.S.	6 H.S.	6 H.S.	6 H.S.	2 *10-in.*, 14 *6-in.*, 2 *3-in.*, 4 *2·2-in.*, 2 L., 2 M.	4	20·1 *t*	1000	500
a.c.	General San Martin	6773	328	59¾	24	13,000	Leghorn .	1896	1898	688,200	6–3 H.S.	1½	6 H.S.	6 H.S.	6 H.S.	6 H.S.	4 *8-in.*, 10 *6-in.*, 6 *4·7-in.*, 4 *2·2-in.*, 2 L., 2 M.	4	19·8	1100	500
b.	Moreno . . / Rivadavia . *Pl.* 18.	27600*	585	98	27½	39,500 B. & W. / Curtis t.	Camden, N.J. (N.Y.S. Co.) / Quincy, Mass.	1911	1914	2,200,000	12–10 K.S.	3–2	9–6 K.S.	9 K.S.	12–9 K.S.	6 K.S.	12 *12-in.*, 12 *6-in.*, 16 *4-in.*, 10 smaller.	2 sub.	22·5 *t*	1600 / 4000	1046
a.c.	Pueyrredon . .	6773	328	59¾	24	13,000 B.	Sestri Ponente	1898	1901	782,000	6–3 H.S.	1½	6 H.S.	5 H.S.	6 H.S.	6 H.S.	2 *10-in.*, 10 *6-in.*, 6 *4·7-in.*, 4 *2·2-in.*, 2 M.	4	20·1 *t*	1000	500

* Normal; 30,000 tons full load; oil fuel 600 tons.

The old coast-defence ironclads Libertad and Independencia, 2336 tons, completed at Birkenhead respectively in 1892 and 1893, are still retained, but possess little value. They carry two 9·4-in., four 4·7-in., and four 3-pr. guns.

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ARGENTINE REPUBLIC.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
cr.	**Buenos Aires**	4780	396	47¼	19	17,000	Elswick	1895	1895	383,000	..	4½	2 *8-in.* (A.), 4 *6-in.*, 6 *4·7-in.*	3	23·2 *t*	1000	429
to.g.b.	**Paraná**	1000	240	32¼	7½	..	Elswick	1908	1909	..	1	3–2*	2 *6-in.* Howitzers, 6 *12-pr.*, 8 M., 4 *12-pr.* field.	..	15·0	120	150
to.g.b.	**Patria**	1070	250	31	10	4500	Birkenhead	1893	1894	87,000	..	..	2 *4·7-in.*, 4 *8-pr.*, 2 *3-pr.*, 2 M.	5	20·75 *t*	288	159
to.g.b.	**Rosario**	1000	240	32¼	7½	..	Elswick	1908	1909	..	1	3–2*	2 *6-in.* Howitzers, 6 *12-pr.*, 8 M., 4 *12-pr.* field.	..	15·0	120	150

* Side.

The training-ship (cruiser) Presidente Sarmiento, 2750 tons, 2000 I.H.P. (locomotive and Niclausse boilers), and 13 knots speed, with 19 guns and three torpedo tubes; launched by Messrs. Laird, 1897. There are also the old cruisers Veinte-y-Cinco de Mayo, 3200 tons, and Nueve de Julio, 3570 tons, completed at Elswick 1902, and several small gunboats and torpedo-gunboats, including the Espora, of 520 tons, completed at Birkenhead in 1891.

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AUSTRIA-HUNGARY.

The following vessels, destroyed before the *Naval Annual* was published last year, have now been removed from the lists:

Kaiserin Augusta, light cruiser, 4000 tons, completed 1892, sunk at Tsingtau, October 15, 1914.

Zenta, torpedo-cruiser, 2264 tons, completed 1899, sunk off Antivari, August 16, 1914.

Temes, armoured river monitor, 430 tons, completed 1905, sunk in the River Save, October 23, 1914.

The armoured ships of the Austro-Hungarian Navy have remained in safety at Pola since the outbreak of war, but light cruisers, destroyers and submarines have been active in the Adriatic, where two destroyers and three or more submarines have been sunk (*see* Torpedo Craft Tables, page 213).

Under the Fleet programme it was intended to lay down one Dreadnought in August and another in October, 1914, and two additional in the spring of 1915; the main armament to be ten 14-in. guns.

The same programme included three light cruisers of 4700 tons and 29 knots.

At the date of the outbreak of war several vessels were being built at the Monfalcone yard for China, including a cruiser (probably of the improved Admiral Spaun class) of 5000 tons, and 28 knots, intended to mount two 7·9-in. and twelve 4·7-in. guns, and three small cruisers of 1800 tons and 32 knots, carrying ten 4-in. guns, which were to be delivered this year. The Italians advanced rapidly, and Monfalcone fell into their hands last June. The situation of the 5000-ton cruiser is unknown, but the Austrians were able to remove the three smaller cruisers to Trieste or Pola for completion.

The French submarine Curie was captured from the French off Pola, December, 1914, and renamed Zenta.

Twelve 33-knot destroyers (787 tons) have been completed at Trieste, of which the Lika and Triglav have been sunk.

On January 13, 1916, the French submarine Foucault claimed to have sunk a light cruiser of the Novara type in the neighbourhood of Cattaro. The statement was afterwards denied by the Austro-Hungarian authorities.

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AUSTRIA-HUNGARY.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal	Complement.
		tons.	ft.	ft.	ft.						in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	Arpád Babenberg	8208	354¼	65¾	23¼	15,000 B.	Trieste	1901 1902	1903 1904	650,900 667,000	8½ K.S.	2½	4 K.S.	8 K.S.	8¼ K.S.	5 K.S.	3 *9·4-in.*, 12 *5·9-in.*, 10 *2·8-in.*, 8 M., 2 l.	2 (sub)	19·6 *t*	500 840	638
c.d.s.	Budapest	5462	305	55¾	21	9185 B.	Trieste	1896	1897	400,600	10½ H.S.	2½	3¼ H.S.	8 H.S.	10½ H.S.	3¼ H.S.	4 *9·4-in.*, 6 *5·9-in.*, 12 *1·8-in.*, 6 M., 2 l.	4	17·8 *t*	500	450
b. b. b.	Erz. Friedrich Erz. Karl Erz. Ferdinand Max *Pl. 20.*	10433	390½	72¼	24½	18,130 *t* 18,000 Y.	Trieste	1904 1903 1905	1906 1905 1907	912,500	8¼ K.S.	3	5 K.S.	8 K.S.	9¼ K.S.	7 K.S.	4 *9·4-in.*, 12 *7·5-in.*, 12 *2·8-in.*, 6 *1·8 in.*, 8 M., 2 l.	2 sub.	20·56 *t* 20·36 *t* 20·0	1315	875
b.	Erz. Franz Ferdinand	14226	450¾	80½	26½	20,600 Y. *t*	Trieste	1908	1910	..	9–7½ K.S.	2	6 K.S.	6 K.S.	10 K.S.	8 K.S.	4 *12-in.*, 8 *9·4-in.*, 20 *3·9-in.*, 6 *12-pr.*, 2 M.	3 sub.	20·6 *t*	750 1200	816
b.	Habsburg *Pl. 20.*	8208	354¼	65¾	23¼	15,000 B.	Trieste	1900	1902	626,000	8½ H.S.	2½	4 H.S.	8 H.S.	8¼ H.S.	5 H.S.	3 *9·4-in.*, 12 *5·9-in.*, 10 *2·8-in.*, 8 M., 2 l.	2 (sub)	19·6 *t*	500 840	638
a.c	Kaiserin Maria Theresia	5187	351	52½	21¼	9755	Trieste	1893	1895 1910	304,187	4	2	..	4	4	4	2 *7·5-in.*, 8 *5·9-in.*, 2 *2·8-in.*, 14 *1·8-in.*, 5 M., 2 l.	4	19·0	740	502
a.c	Kaiser Karl VI. *Pl. 21.*	6151	367½	56	20½	12,800 B.	Trieste	1898	1900	429,000	10 H.S.	1½	6 H.S.	8 H.S.	8¾ H.S.	6 H.S.	2 *9·4-in.*, 8 *5·9-in.*, 16 *1·8-in.*, 4 M., 2 l.	4	20·7 *t*	800	535
c.d.s.	Monarch	5550	305	55¾	21	8900	Pola	1895	1896	399,062	10½ H.S.	2½	3¼ H.S.	8 H.S.	10½ H.S.	3¼ H.S.	4 *9·4-in.*, 6 *5·9-in.*, 12 *1·8-in.*, 6 M., 2 l.	4	17·4 *t*	500	450
b.	Prinz Eugen *Pl. 19.*	20000	495	89½	27	25,000 P. tur. Y.	Trieste	1912	1915	2,500,000	11–4¾ K.S.	2½	6 K.S.	..	12 K.S.	6 K.S.	12 *12-in.*, 12 *5·9-in.*, 18 *12-pr.*, 6 smaller	4 (sub)	20·5	900 2000	1000
b.	Radetzky *Pl. 20.*	14226	450¾	80½	26½	20,000 Y.	Trieste	1909	1911	..	9–7½ K.S.	2	6 K.S.	6 K.S.	10 K.S.	8 K.S.	4 *12-in.*, 8 *9·4-in.*, 20 *3·9-in.*, 6 *12-pr.*, 2 M.	3 (sub)	20·5	750 1200	816
a. c.	St. Georg *Pl. 21.*	7185	383¾	61¾	21¼	15,270 *t*, Y.	Pola	1903	1906	581,583	8¼–6½ K.S.	1½	5 K.S.	7 K.S.	8¼–5¼ K.S.	6 K.S.	2 *9·4-in.*, 5 *7·5-in.*, 4 *5·9-in.*, 9 *2·8-in.*, 14 M., 2 l.	2 (sub)	22 *t*	1000	628
b.	Szent Istvan Tegetthoff Viribus Unitis *Pl. 19.*	20000	495	89½	27	25,000 A. E. G. tur. 25,000 P. tur. Y.	Fiume Trieste Trieste	1914 1912 1911	1915 1913 1913	2,500,000	11–4¾ K.S.	2½	6 K.S.	..	12 K.S.	6 K.S.	12 *12-in.*, 12 *5·9-in.*, 18 *12-pr.*, 6 smaller	4 (sub)	20·7 *t*	900 2000	1000
c d.s.	Wien	5550	305	55¾	21	8480	Trieste	1895	1897	397,850	10½ H.S.	2½ H.S.	3¼ H.S.	8 H.S.	10½ H.S.	3¼ H.S.	4 *9·4-in.*, 6 *5·9-in.*, 12 *1·8-in.*, 6 M., 2 l.	4	17·6 *t*	500	450
b.	Zrinyi *Pl. 20.*	14226	450¾	80½	26½	20,000 Y.	Trieste	1910	1911	..	9–7½ K.S.	2	6 K.S.	6 K.S.	10 K.S.	8 K.S.	4 *12-in.*, 8 *9·4-in.*, 20 *3·9-in.*, 6 *12-pr.*, 2 M.	3 sub.	20·5	750 1200	816

The ante-bellum programme included four battleships of 24,500 tons, but it is doubtful if these have yet been begun. There are seven armoured river monitors, Bodrog, Körös, Maros, Leitha, and Szamos, of 300–437 tons displacement, two 4·7-in. guns—Maros and Leitha one only, Bodrog one 4·7-in. howitzer additional—and two others completed in 1914 at Linz and Budapest. These have heavier armament carried in three turrets; draught about 4 ft., speed 13·5 knots.

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AUSTRIA-HUNGARY.—Cruising Ships, &c.

Class	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
to. cr.	**Admiral Spaun***	3500	416¾	42	15½	21,000 Y. tur.	Pola	1909	1910	..	1	..	7 *3·9-in.*, 2 M.	2	26·0	450 850	320
to. cr.	**Aspern**	2362	301¾	39½	14¼	7300 Y	Pola	1899	1901	155,000	2	..	8 *4·7-in.*, 8 *1·8-in.*, 4 M.	1	20·0	470 500	305
to. cr.	**Helgoland***	3500	416¾	42	15½	25,000 Tur.	Monfalcone	1912	1914	..	1	..	9 *3·9-in.*, 4 smaller	2	27·0	450 850	320
cr. 2nd cl.	**Kaiser Franz Josef I.**	3966	321½	47½	18½	8000	Trieste	1889	1891	..	2¼	3½	2 *9·4-in.* (K.), 6 *5·9-in.* do., 16 *1·8-in.*, 2 l.	5	19·0	660	426
to. g. b.	**Magnet**	502	220	26¾	8	5000 T	Elbing	1896	1899	51,052	..	..	6 *1·8-in.*	3	26·0 *t*	105	80
to. cr.	**Novara*** †	3500	416¾	42	15½	25,000 Tur.	Fiume	1913	1914	..	1	..	9 *3·9-in.*, 4 smaller	1	27·0	450 850	320
to. cr.	**Saida***	3500	416¾	42	15½	25,000 Tur.	Monfalcone	1912	1914	..	1	..	9 *3·9-in.*, 4 smaller	1	27·0	450 850	320
to. g. b.	**Satellit**	531	220	26¾	9¼	4000	Elbing	1893	1893	..	1½	..	1 *2·8-in.*, 8 *1·8-in.*	..	21·87	76	84
to. cr.	**Szigètvâr**	2313	301¾	39½	14¼	7300 Y.	Pola	1899	1901	155,000	2	..	8 *4·7-in.*, 8 *1·8-in.*, 4 M.	1	20·0	470 500	305
to. g. b.	**Trabant**	522	220	23	8¼	3500	Trieste	1890	1891	..	..	..	2 *2·8-in.*, 8 *1·8-in.*	1	20·0	..	84
to. g. b.	**I., II., III.‡**	1800	349¾	39	15	3000 T	Monfalcone	1914	1915	..	..	..	10 *4-in.*, 2 M	2	32·0	..	..

* 2½ in. side armour and 2 in. bulkhead.

† Cruiser of Novara type said to have been torpedoed by French submarine Foucault, January 13th, but the loss was subsequently denied by the Austro-Hungarian naval authorities.

‡ Three small cruisers built for China at Monfalcone, but taken over by the Austro-Hungarian Navy.

Mining vessel, Chamäleon, 1000 tons. Pelikan, 2431 tons, submarine tender. Donau, training corvette (2307 tons). A submarine depôt and salvage vessel, 950 tons, 15 knots. Tender and repair ship for flotillas, Gaea (*ex* Fürst Bismarck). Fleet colliers, Pola and Teodo, 7000 tons.

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BRAZIL.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkheads.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
c.d.s., t.	Marshal Deodoro	3112	267½	48	13¼	3400 D'A.	La Seyne	1898	1900	..	13¾–4 H.S.	1½	..	..	8 H.S.	3 H.S.	2 *9·4-in.*, 4 *4·7-in.*, 2 M., 4 *6-pr.*, 2 *1-pr.*	2 (sub.)	15·0	236	200
c.d.s., t.	Marshal Floriano							1899	1901												
b.	Minas Geraes *Pl. 22.*	19,281	500	83	25	27,212 *t* B.&W.	Elswick	1908	1909	1,821,400	9–6–4 K.S.	2	9–6–4 K.S.	9	12–8 K.S.	9 K.S.	12 *12-in.*, 22 *4·7-in.*, 8 *3-pr.*	4	21·4 *t*	900 2400	900
b.	São Paulo *Pl. 22.*	19,281	500	83	25	28,645 *t* B.&W.	Barrow	1909	1910	1,821,400	9–6–4 K.S.	2	9–6–4 K.S.	9 K.S.	12–8 K.S.	9 K.S.	12 *12-in.*, 22 *4·7-in.*, 8 *3-pr.*	4	21·6 *t*	900 2400	900

Also river monitors Maranhao and Pernambuco, built at Rio de Janeiro.

The battleship Rio de Janeiro, 27,500 tons, built at Elswick, was on the outbreak of war added to the British Navy, and named Agincourt. A substitute ship for the Brazilian Navy, to be named Riachuelo, and to mount eight 15-in., fourteen 6-in., and sixteen 4-in. guns, was intended to be built by Messrs. Armstrong.

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BRAZIL.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
cr.	Bahia	3100	380	39	13½	17,500 tur.	Elswick	1909	1910	328,500	¾–1½	..	10 *4·7-in.*, 8 *1·8-in.*	2	27·0 *t*	650	260
„	Barroso	3600	330	43¾	16¾	7500	Elswick	1896	1897	..	3	4½ shields	6 *6-in.*, 4 *4·7-in.*, 10 *6-pr.*, 4 *1-pr.*, 4 M.	3	20·0	700	300
„	Benjamin Constant	2707	236	46	18	2800	La Seyne	1892	1894	..	2	..	4 *6-in.*, 8 *4·7-in.*, 8 M., 4 l.	4	14·0	260	287
„	Republica *	1300	210	35	13	750	Elswick.	1892	1894	..	2–1	..	6 *4·7-in.*, 4 *6-pr.*, 6 M.	4	17·0	170	160
„	Rio Grande do Sul	3100	380	39	13½	17,500 tur.	Elswick	1909	1910	328,500	..	..	10 *4·7-in.*, 8 *1·8*-in.	2	27·4 *t*	650	260
to.cr.	Tamoyo	1063	269	28¾	9¾	6500	Kiel	1898	1900	..	..	4½ shields	2 *4·1-in.*, 6 *2·2-in.*, 2 *1·4-in.*, 2 M.	3	23·0	293	110
„	Timbira	1014	249½	30¾	10¼	7000	Kiel	1896	1897	..	½	4½ shields	2 *4·1-in.*, 6 *2·2-in.*, 2 *1·4-in.*, 2 M.	3	22·5	250	110
„	Tupy	1014	249½	30¾	10¼	7000	Kiel	1896	1897	..	½	4½ shields	2 *4·1-in.*, 6 *2·2-in.*, 2 *1·4-in.*, 2 M.	3	22·5	250	110

Eleven screw gunboats, 200 tons to 400 tons, and four 12-knot river gunboats built at Poplar. Two river gunboats built by Messrs. Yarrow were sent out in sections, 1907.

Almirante Tamandare (launched 1890), 4660 tons, gunnery ship. Tiradentes (189), 800 tons, training ship.

* Converted into a mine-layer.

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CHILE.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			kts.	tons.	
b.	Almirante Cochrane * *Pl. 2.*	28,000	625	92	28½	37,000 P.tur.Y.	Walker	1914	..	..	9–6 K.S.	4–2½	4½ K.S.	..	10 K.S.	6 K.S.	10 *14-in.*, 16 *6-in.*, several smaller, 4 M.	4 (sub.)	23	1200 4000	1000
a.c.	Almirante O'Higgins	8,500	411¾	62½	22	16,000 B.	Elswick	1897	1898	..	7–5	2	..	..	7½–6	6	4 *8-in.*, 10 *6-in.*, 4 *4·7-in*, 10 *12-pr.*, 10 *6-pr.*, 4 M.	3 (2 sub.)	21·5 *t*	1260	500
b.	Capitão Prat	5,981	328	60¾	21¾	12,000	La Seyne	1890	1893	391,000	12	3	4	..	10½	2	4 *9·4-in.* (Canet), 8 *4·7-in.* (Canet), 10 *12-pr.*, 14 smaller and M.	4	18·3 *t*	775	480
a.c.	Esmeralda	7,020	436	53¼	22¼	16,000	Elswick	1896	1897	..	6 H.S.	2	..	6 H.S.	4½ Shields	..	2 *8-in.*, 16 *6-in.*, 8 *12-pr.*, 2 *3-pr.*, 4 M.	3 (2 sub.)	22·8 *t*	1350	500

* Sister of British battleship Canada.

Capitão Prat reconstructed.

Cruising Ships, &c.

Class	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						in.	in.			knots.	tons.	
cr	Blanco Encalada	4400	370	46½	18½	14,500	Elswick	1893	1894	..	4–1¾	..	2 *8-in.*, 10 *6-in.*, 12 *3-pr.*, 10 *1-pr.**	5	22·78 *t*	900	427
„	Chacabuco	4500	360	46	18	15,750	Elswick	1901	1903	..	4½–1¾	..	2 *8-in.*, 10 *4·7-in.*, 16 *1·8-in.*, 2 M., 1 l.	5	23·0	1000	350
„	General Baquedano (Training)	2330	240	45¾	18	1500 B.	Elswick	1898	1900	..	..	..	4 *4·7-in.*, 2 *12-pr.*, 2 *6-pr.*, 2 M., 1 l.	1	13·7 *t.*	300	302
„	Ministro Zenteno	3600	330¼	43¾	16¾	6500	Elswick	1896	1898	..	..	..	8 *6-in.*, 10 *6-pr.*, 4 *1-pr.**	3	20·0*t*	800	280
„	Presidente Errázuriz	2047	268	35¾	19½	5400	La Seyne	1890	1892	..	3½	..	4 *6-in.* (Canet), 2 *5-in.*, 4 *2·2-in.*, 6 M.	3	19·0	200	171

* Armstrong.

Two Gunboats of 145 tons displacement and one of 180 tons.

CHINA.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck	Armour. Gun Position.	Armament. Guns.	Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						in.	in.			kts.	tons.	
cr.	Chao Hao	2750	330	42	13¼	6000 P. tur.	Elswick	1911	1912	..	¾	..	2 *6-in.*, 4 *4-in.*, 2 *3-in.*, 6 *3-pr.*, 2 l.	2	22·0	150 550	330
to.g.b.	Fei-Ying	837	257¼	28½	12½	4500 Y.	Stettin	1895	1895	..	..	2	2 *4-in.*, 6 *3·4-in.*, 4 smaller	3	21·8 *t*	75	90
cr.	Hai-Chi	4300	396	46¾	18½	17,000	Elswick	1898	1899	..	5	6	2 *8-in.*, 10 *4·7-in.*, 12 *3-pr.*, 4 *1·4-in.*, 6 M.	5	24·0	300	374
„	Hai-Shen	2903	314¾	41	16	8000	Vulcan	1898	1898	..	3	2	3 *6-in.* (K.), 8 *4-in.*, 6 *1·4-in.* Hotchkiss, 6 M.	3 (1 sub.)	20·7 *t*	220 500	244
„	Hai-Shew						Vulcan	1897	1898								
„	Hai-Yung						Stettin	1897	1898								
to.cr.	Kien-Wei	861	256	26½	10½	7000 N.S.	Foochow	1900	1902	..	..	..	1 *3·9-in.*, 3 *2·5-in.*, 6 *1·4-in.*	2	22·5	360	300
„	Kien-Gnan						Foochow	1899	1902	..	..	..					
g.b.	Tchu-Tai	552	..	..	..	..	Kobe	1906	1908	..	..	..	2 *4·7-in.*, 2 *12-pr.*	..	13·0	..	..
cr.	Ying Swei	2500	330	42	13	6000	Barrow	1911	1912	..	¾	..	2 *6-in*, 4 *4-in.*, 2 *3-in.*, 6 *3-pr.*, 2 l.	2	22·0	150 550	330

Yung-Fung, Yung-Chiang, Yung Hsiang, 800 tons, 13·5 knots, one 4-in. and smaller guns, Yangtsze gunboats, built in Japan, 1912. Two river gunboats of 150 tons built at the Germania Yard, Kiel. At the Kawasaki Yard, Kobe, the Kiang Heng, Jsu Jang, and other small cruisers, or gunboats, have lately been built. Admiralty yacht Wufung, 500 tons, 14 knots, built at Kiao-chau.

The Kiangnan Dock Co. is building two cruisers, 750 tons, Fei-Hu and Fei-Lung; also the river gunboats Chiangying and Chianghui, 140 tons; three others at the Yangtse Yard, Hankow.

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DENMARK.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
c.d.s., t.	Herluf Trolle	3415	271	50	16¼	4200 T.	Copenhagen	1899	1901	..	8–4 H.S	2	7 H.S.	..	6 H.S.	6 H.S.	2 9·4-in., 4 5·9-in., 10 2·2-in., 8 smaller.	3 (sub.)	16·0	250	250
c.d.s., t.	Iver Hvitfeldt	3208	242	49½	18	5100	Copenhagen	1886	1889 1900	200,000	12	2	..	9½	8	..	2 10·2-in. (K.), 10 6-pr., 8 M.	4 (1 sub.)	15·6	250	298
c.d.s., t.	Niels Juel	3675	274¼	51½	16¼	4600	Copenhagen	1915	1916	..	3–4 K.S.	2	..	..	7 K.S.	6 K.S.	2 9·4-in., 4 5·9-in., 18 smaller	4 (sub.)	16	250	250
c.d.s., t.	Olfert Fischer	3415	271	50	16¼	4200	Copenhagen	1903	1905	..	8–4 K.S.	2	7 K.S.	..	6 K.S.	6	2 9·4-in., 4 5·9-in., 10 2·2-in., 8 smaller.	3 (sub.)	16·0	250	250
c.d.s., t.	Peder Skram	3543	274¼	51½	16¼	4600	Copenhagen	1908	1909	..	8–4 K.S.	2	..	..	7 K.S.	6 K.S.		4	16·5	250	250
c.d.s., t.	Skjold	2115	226½	38	13½	2200 T.	Copenhagen	1896	1899	..	9	2	..	7	8	4½	1 9·4-in., 3 4·7-in. (K.), 4 1·8-in., 1 M.	4	13·0	280	210

Another coast-defence ship of the Niels Juel type is to be built.

DENMARK.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.				tons.	
3rd cl. cr.	Geiser	1260	257½	27½	11¼	3000 T.	Copenhagen	1892	1893	..	1½	..	2 4·7-in., 4 3·4-in., 6 M.	4	17·1 t	125	155
„	Heimdal	1260	257½	27½	11¼	3000 T.	Copenhagen	1894	1896	..	1½	..	2 4·7-in., 4 3-pr., 6 M.	4	17·5	125	155
„	Hekla	1260	233	32¾	11¼	3000 T.	Copenhagen	1890	1893	..	1½	..	2 6-in., 4 2·2-in., 6 M.	4	17·0	125	155

Two obsolete cruisers, Fyen (2580 tons) and Valkyrien (2854 tons).

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FRANCE.

The following ships and vessels lost to the French Navy prior to the issue of the *Naval Annual* last year have been removed from the lists:

Bouvet, battleship, 12,007 tons, completed 1898, sunk by mine at the Dardanelles, March 18, 1915.

Léon Gambetta, armoured cruiser, 12,351 tons, completed 1904, sunk by Austro-Hungarian submarine U 5 in the Strait of Otranto, April 27, 1915.

Zélée, gun vessel, 554 tons, completed 1900, sunk October 28, 1914.

Dague, 730 tons, and Mousquet, 300 tons, destroyers.

Saphir and Curie, submarines, the former wrecked and lost, and the latter captured off Pola by the Austrians and renamed Zenta.

More recent losses are indicated in the tables.

The battleship Gaulois was badly injured by gun-fire in the attack on the Dardanelles on March 18, 1915, and was run ashore on Rabbit Island. It has been stated that the Masséna, which was employed in the same operations, is no longer in the service.

The battleship Languedoc was launched at the Chantiers et Ateliers de la Gironde, Bordeaux, May 1, 1915.

The French Navy is in a condition of rapid development, and the State and private yards are engaged in new and repair work.

It may be assumed that ships and vessels which were building in French yards for foreign Governments have been taken over, if in character and state of advancement suitable for the French Navy. A battleship of the Lorraine class, to be built for Greece, was laid down at the St. Nazaire (Penhoët) shipyard, June 12, 1914, to be completed within twenty-seven months. Concerning her situation nothing has been disclosed.

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FRANCE.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
a.c.	Aube (Amiral) . Pl. 30.	9856	453	66¼	24½	22,155 t. B.	St. Nazaire	1902	1904	973,440	6–4 H.S.	2	5–2 H.S.	..	7½ H.S.	6½–5 H.S.	2 7·6-in., 8 6·4-in., 6 3·9-in., 20 small Q.F. and M.	2 (sub.)	21·9 t	970 / 1590	615
t.	Béarn* . Pl. 23.	24,802	574¼	88½	29	36,000 T. Nic.	La Seyne	1915	..	..	11–7 K.S.	2¾	7 K.S.	..	12 K.S.	7 K.S.	12 13·4-in. (3 turrets), 24 5·5-in., 4 3-pr.	6 (sub.)	21·0	900 / 2700	1204
b	Brennus .	11,190	361	67	26¼	14,000 B.	Lorient	1891	1893	991,767	15¾ comp.	4	4¾ comp.	..	17¾ comp.	4¾ comp.	3 13·4-in., 10 6·4-in., 23 small Q.F. and M.	4	17·1 t	800	696
b.	Bretagne . Pl. 24.	23,177	546	88½	29	29,000 tur.	Brest	1913	1915	2,589,439	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	10 13·4-in., 22 5·5-in., 8 small Q.F. and M.	4 (sub.)	20·0	900 / 2700	1167
a.c.	Bruix .	4735	365¼	46	19¾	9049 B.	Rochefort	1894	1896	409,622	3¾–2¾	2	3¾	..	3¾	3¾	2 7·6-in., 6 5·5-in., 4 2·5-in., 4 1·8-in., 4 1·4-in., M.	4	18·3 t	406	391
b	Carnot . Pl. 29.	11,954	382¼	70½	27¼	16,300 t. D'A.	Toulon	1894	1897	1,070,088	17¾–9 comp.	2¾	4	..	14½	4	2 12-in., 2 10·8-in., 8 5·5-in., 4 2·5-in., 16 1·8-in., 10 1·4-in., and M.	2 (sub.)	17·86 t	705	625
b.	Charlemagne . Pl. 28.	11,108	385½	66½	27½	14,500 B.	Brest	1895	1898	1,096,432	15¾ H.N.	3½	3 H.N.	..	15¾ H.N.	3 H.N.	4 12-in., 10 5·5-in., 8 3·9-in., 16 1·8-in., 10 1·4-in., 8 M.	2 (sub.)	18·1 t	680 / 1100	631
b.	Charles Martel.	11,693	392½	71	27½	14,996 t. D'A.	Brest	1893	1897	1,092,830	17¾	3½	4	..	15¾	4	2 12-in., 2 10·8-in., 8 5·5-in., 4 2·5-in., 14 1·8-in., 5 1·4-in.	2 (sub.)	18·1 t	677	632
a.c.	*Charner* (*Amiral*) (1)	4702	348	46	19¼	8300 B.	Rochefort	1893	1895	353,200	3¾–2¾	2	3¾	..	3¾	3¾	2 7·6-in., 6 5·5-in., 14 small Q.F. and M.	4	18·2 t	413	375
a.c	Conde . Pl. 30.	9856	453	63¾	24½	22,175 Nic.	Lorient	1902	1904	863,799	6–4 H.S.	2	5–2 H.S.	..	7½ H.S.	6½–5 H.S.	2 7·6-in., 8 6·4-in., 6 3·9-in., 16 1·8-in., 6 1·4-in.	2 (sub.)	21·4 t	970 / 1590	615
b.	Condorcet. Pl. 26.	18,028	476	84	27	22,500 N. tur.	St. Nazaire	1909	1911	2,165,200	10–8 K.S.	2¾	8¾	..	12 K.S.	8¾ K.S.	4 12-in., 12 9·4-in., 16 12 pr., 8 3-pr., 2 1-pr.	2 (sub.)	19·8 t	960 / 2010	690
b.	Courbet . Pl. 25.	23,100	546	88½	29	28,000 N. tur.	Lorient	1911	1913	2,508,388	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	12 12-in., 22 5·5-in., 4 3-pr	4 (sub.)	20·0	900 / 2700	998
b.	Danton . Pl. 26.	18,028	476	84	27	22,500 B. tur.	Brest	1909	1911	2,068,000	10–8 K.S.	2¾	8¾	..	12 K.S.	8¾ K.S.	4 12-in., 12 9·4-in., 16 12-pr., 8 3-pr., 2 1-pr.	2 (sub.)	20·18 t	960 / 2010	690
b.	Démocratie . Pl. 26.	14,635	438¾	79½	27½	19,190 B.	Brest	1904	1907	1,473,180	11–7 H.S.	2¾	8 H.S.	..	12 H.S.	6 H.S.	4 12-in., 10 7·6-in., 26 1·8-in., 2 1·4-in.	2 (sub.)	19·44 t	905 / 1285	793
a.c.	Desaix . shd. Pl. 31.	7578	426½	58¼	24¼	17,715 t B.	St. Nazaire	1901	1903	762,759	4–3 H.S.	2¾	..	..	3½ H.S.	..	8 6·4-in., 4 3·9-in., 10 1·8-in., 4 1·4-in.	2	21·7 t	880 / 1200	531

* See foot note, page 164, for the Tourville class of four battleships.

(1) Amiral Charner torpedoed and sunk off coast of Syria, February 8, 1916.

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FRANCE.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armament. Gun Position. Heavy Guns.	Armament. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	**Diderot** *Pl.* 26.	18,028	476	84	27	22,500 N. tur.	St. Nazaire	1909	1911	2,167,000	10–8 K.S.	2¾	8¾	..	12 K.S.	8¾	4 *12-in.*, 12 *9·4-in.*, 16 *12-pr.*, 8 *3-pr.*, 2 *1-pr.*	2 (sub.)	19·75 *t*	960 / 2010	690
a.c.	**DupetitThouars** *Pl.* 31.	9367	452¾	63¾	24½	22,000 *t* B.	Toulon	1901	1905	831,839	6 H.S.	2	3¾ H.S.	6 H.S.	6 H.S.	3¾ H.S.	2 *7·6-in.*, 8 *6·4-in.*, 4 *3·9-in.*, 16 *1·8-in.*, 6 *1·4-in.*	2 (sub.)	22·5 *t*	1020 / 1600	610
a.c.	**Dupleix** shd. *Pl.* 31.	7578	426½	58¼	24¼	17,100 B.	Rochefort	1900	1903	652,354	4–3 H.S.	2¾	..	..	3½ H.S.	..	8 *6·4-in.*, 4 *3·9-in.*, 10 *1·8-in.*, 4 *1·4-in.*	2	21·0	880 / 1200	531
a.c.	**Edgard Quinet**	13,780	515	70¼	27½	39,803 *t* B.	Brest	1907	1911	1,307,536	6½–3½ K.S.	2½–1½	5–2 K.S	4¾ K.S.	8 K.S.	4¾ K.S	14 *7·6-in.*, 20 *2·4-in.*, 2 smaller.	2 (sub.)	23·9 *t*	1242 / 2300	738
a.c.	**Ernest Renan** *Pl.* 29.	13,427	515	70½	26¾	37,500 Nic.; *t*	St. Nazaire	1906	1909	1,410,000	6¾–4 H.S.	2	5–3 H.S.	4¾	6 H.S.	5 H.S	4 *7·6-in.*, 12 *6·4-in.*, 16 *9-pr.*, 8 *3-pr.*	2 (sub.)	25·5 *t*	1354 / 2300	674
b.	**Flandre** *Pl.* 23.	24,812	574¼	88½	28¼	34,800 P.	Brest	Bldg	..	2,589,439	11–7 K.S.	2¾	7 K.S.	..	12 K.S.	7 K.S.	12 *13·4-in.* (3 turrets), 24 *5·5-in.*, 4 *3-pr.*	6 (sub.)	21·0	900 / 2700	1204
b.	**France** *Pl.* 25.	23,100	546	88½	29	28,000 N. tur.	St. Nazaire	1912	..	2,603,920	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	12 *12-in.*, 22 *5·5-in.*, 8 *3-pr.* Q.F. and M.	4 (sub.)	20·0	900 / 2700	998
b.	**Gascogne** *Pl.* 23.	24,802	574¼	88½	28¼	34,800 P.	Lorient	Bldg.	..	2,589,439	11–7 K.S.	2¾	7 K.S.	..	12 K.S.	7 K.S.	12 *13·4-in*, 24 *5·5-in*, 4 *3-pr.*	6 (sub.)	21·0	900 / 2700	1204
b.	**Gaulois(1)** *Pl.* 28.	11,105	385½	66½	27½	14,500 B.	Brest	1896	1899	1,093,925	15¾ H.N.	3½–1½	3 H.N.	..	15¾ H.N.	3 H.N.	4 *12-in.*, 10 *5·5-in.*, 8 *3·9-in.*, 16 *1·8-in.*, 10 *1·4-in.*, 8 M.	2 (sub.)	18·0	680 / 1100	632
a.c.	**Gloire** *Pl.* 30.	9856	453	63¾	24½	20,500 Nic.	Lorient	1900	1904	883,269	6–4 H.S.	2	5–2 H.S.	..	7½ H.S.	6½–5 H.S.	2 *7·6-in.*, 8 *6·4-in.*, 6 *3·9-in.*, 16 *1·8-in.*, 6 *1·4-in.*	2 (sub.)	21·0	970 / 1590	615
a.c.	**Gueydon** (Amiral) *Pl.* 31.	9367	459	63¾	24½	20,200 Nic	Lorient	1899	1902	817,994	6–3¾ H.S.	2	3¾ H.S.	6 H.S.	6 H.S.	3¾ H.S.	2 *7·6-in.*, 8 *6·4-in.*, 4 *3·9-in.*, 16 *1·8-in.*, 6 *1·4-in.*	2 (sub.)	21·0	1020 / 1600	610
b.	**Henri IV.** *Pl.* 28.	8807	354½	72	23	11,500 Nic.	Cherbourg	1899	1902	801,248	11–7 H.S.	3	4¾ H.S.	..	11¾ H.S.	5 H.S.	2 *10·8-in.*, 7 *5·5-in.*, 12 *1·8-in.*, 2 M.	2 (sub.)	17·2 *t*	735 / 1100	464
b.	**Jauréguiberry**	11,637	364	72¾	27¾	15,800 D'A.	La Seyne	1893	1896	1,069,536	17¾	2¾	4	..	14½	4	2 *12-in.*, 2 *10·8-in.*, 8 *5·5-in.*, 4 *2·5-in.*, 12 *1·8-in.*, 8 *1·4-in.*, 8 M.	2 (sub.)	18·07 *t*	700	625

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b.	**Jean Bart** *Pl.* 25.	23,100	546	88½	29	28,000 B. tur.	Brest	1911	1913	2,528,888	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	12 *12-in.*, 22 *5·5-in.*, 4 *3-pr.*	4 (sub.)	20·0	900/2700	998
a.c.	**Jeanne d'Arc** *Pl.* 32.	11,092	477¼	63¾	26½	28,000 Guyot	Toulon	1899	1903	875,847	6–3 H.S.	2·2	3 H.S.	..	6 H.S.	5 H.S.	2 *7·6-in.*, 14 *5·5-in.*, 16 *1·8-in.*, 8 *1·4 in.*, 2 M.	2 (sub.)	21·7 *t*	1400/2000	626
„	**Jules Ferry** *Pl.* 30.	12,351	480½	70¼	27	28,753 Guyot	Cherbourg	1903	1906	1,169,940	6¾–4 H.S.	2	5–3 H.S.	6	6 H.S.	5 H.S.	4 *7·6-in.*, 16 *6·4-in.*, 22 *1·8-in.*, 2 *1·4-in.*	2 (sub.)	22·8 *t*	1320/2100	728
„	**Jules Michelet.**	12,370	480½	70¼	27	27,700 Guyot	Lorient	1905	1908	1,204,107	6–4 K.S.	2	5–3 K.S.	6 H.S.	8 K.S.	5 K.S.	4 *7·6-in.*, 12 *6·4-in.*, 24 *1·8-in.*, 2 *1·4-in.*	2 (sub.)	23·2 *t*	1320/2100	724
b.	**Justice** *Pl.* 26.	14,635	438¾	79½	27½	18,548 Nic. *t.*	La Seyne	1904	1907	1,670,385	11–7 H.S.	2¾	8 H.S.	..	12 H.S.	6 H.S.	4 *12-in.*, 10 *7·6-in.*, 26 *1·8-in.*, 2 *1·4-in.*	2 (sub.)	19·43 *t*	905/1825	793
a.c.	**Kléber** shd. *Pl.* 31.	7578	426½	58¼	24¼	18,000 Nic.	Bordeaux	1902	1904	770,320	4–3 H.S.	2¾	..	..	3½ H.S.	..	8 *6·4-in.*, 4 *3·9-in.*, 10 *1·8-in.*, 4 *1·4-in.*	2	21·2 *t*	880/1200	531
b.	**Languedoc** *Pl.* 23.	24,802	574¼	88½	28¼	34,800 S.	Bordeaux	1915	..	2,642,439	11–7 K.S.	2¾	7 K.S.	..	12 K.S.	7 K.S.	12 *13·4-in.* (3 turrets), 24 *5·5-in.*, 4 *3-pr.*	6 (sub.)	21·0	900/2700	1204
b.	**Lorraine** *Pl.* 24.	23,177	546	88½	29	29,000 tur. S. & cyl.	St. Nazaire	1913	1915	2,642,439	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	10 *13·4-in.*, 22 *5·5-in.*, 8 small Q. F. & M.	4 (sub.)	20·0	900/2700	1167
a.c.	**Marseillaise** *Pl.* 30.	9856	453	63¾	24½	20,500 B.	Brest	1900	1903	881,270	6·4 H.S.	2	5–2 H.S.	..	7½ H.S.	6½–5 H.S.	2 *7·6-in.*, 8 *6·4-in.*, 6 *3·9-in.*, 2 *2·5-in.*, 18 *1·8-in.*, 6 *1·4-in.*	2 (sub.)	21·0	970/1590	615
b.	**Masséna**(2)	11,735	384¾	66	27	13,500 D'A.	St. Nazaire	1895	1898	1,100,400	17¾–9¾	3½	4 H.S.	16	15¼15¾ H. S.	4	2 *12-in.*, 2 *10·8-in.*, 8 *5·5-in.*, 8 *3·9-in.*, 12 *1·8-in.*, 12 *1·4-in.*	2 (sub.)	17·1 *t*	630	642
b.	**Mirabeau** *Pl.* 26.	18,028	476	84	27	22,500 B. tur.	Lorient	1909	1911	2,032,000	10–8 K.S.	2¾	8¾	..	12 K.S.	8¾ K.S.	4 *12-in.*, 12 *9·4-in.*, 16 *12-pr.*, 8 *3-pr.*, 2 *1-pr.*	2 (sub.)	19·73 *t*	960/2010	690
a.c.	**Montcalm.** *Pl.* 31.	9367	452¾	63¾	24½	19,600 N.S.	La Seyne	1900	1902	902,809	6 H.S.	2	3¾ H.S.	6 H.S.	6 H.S.	2¾ H.S.	2 *7·6-in.*, 8 *6·4-in.*, 4 *3·9-in.*, 16 *1·8-in.*, 6 *1·4-in.*	2 (sub.)	21·0	1020/1600	612
b.	**Normandie** *Pl.* 23.	24,802	574¼	88½	28¼	34,800 P.	St. Nazaire	1914	..	2,642,439	11–7 K.S.	2¾	7 K.S.	..	12 K.S.	7 K.S.	12 *13·4-in.* (3 turrets), 24 *5·5-in.*, 4 *3-pr.*	6 (sub.)	21·0	900/2700	1204
b.	**Paris.** *Pl.* 25.	23,100	546	88½	29	28,000 N. tur.	La Seyne	1912	..	2,603,920	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	12 *12-in.*, 22 *5·5-in.*, 8 *3-pr.*, Q. F. & M.	4 (sub.)	20·0	900/2700	998
b.	**Patrie.** *Pl.* 27.	14,635	438¾	79½	27½	17,859 *t.* Nic.	La Seyne	1903	1906	1,674,870	11–7 H.S.	2¾	8 H.S.	..	12 H.S.	6 H.S.	4 *12-in.*, 18 *6·4-in.*, 26 *1·8-in.*, 2 *1·4-in.*	2 (sub.)	19·12 *t*	905/1825	793

(1) Gaulois injured at the Dardanelles and beached on Rabbit Island.

(2) Masséna, situation uncertain.

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FRANCE.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			kts.	tons.	
b.	**Provence** *Pl.* 24.	23,177	546	88½	29	29,000 tur.	Lorient	1913	1915	2,600,195	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	10 *13·4-in.*, 22 *5·5-in.*, 8 small Q.F. and M.	4 (sub.)	20·0	900/2700	1167
b.	**République** *Pl.* 27.	14,635	438¾	79½	27½	19,626 *t.* Nic.	Brest	1902	1906	1,523,136	11–7 H.S.	2¾	8 H.S.	..	12 H.S.	6 H.S.	4 *12-in.*, 18 *6·4-in.*, 26 *1·8-in.*, 2 *1·4-in.*	2 (sub.)	19·15	905/1825	793
b.	**Saint Louis** *Pl.* 28.	11,090	385½	66½	27½	14,500 B.	Lorient	1896	1900	1,080,997	15¾ H.N.	3½	3 H.N.	..	3–15¾ H.N.	3 H.N.	4 *12-in.*, 10 *5·5-in.*, 8 *3·9-in.*, 16 *1·8-in.*, 10 *1·4-in.*, 8 M.	2 (sub.)	18·0	820/1150	631
b	**Suffren** *Pl.* 27.	12,527	411¾	70¼	27½	16,500 Nic.	Brest	1899	1903	1,195,564	12–8 H.S.	2¾	5–3 H.S.	..	12 H.S.	6–5 H.S.	4 *12-in.*, 10 *6·4-in.*, 8 *3·9-in.*, 20 *1·8-in.*, 2 *1·4-in.*	2 (sub.)	18·0	1100/1820	615
b.	**Vergniaud** *Pl.* 26.	18,028	476	84	27	22,500 N. tur.	Bordeaux	1910	1911	2,165,200	10–8 K.S	2¾	8¾	..	12 K.S.	8¾ K.S.	4 *12-in.*, 12 *9·4-in.*, 16 *12-pr.*, 8 *3-pr.*, 2 *1-pr.*	2 (sub.)	19·67 *t*	960/2010	690
b.	**Vérité** *Pl.* 26.	14,635	438¾	79½	27½	20,433 *t.* B.	Bordeaux	1907	1908	1,661,409	11–7 H.S.	2¾	8 H.S.	..	12 H.S.	6 H.S.	4 *12-in.*, 10 *7·6-in.*, 26 *1·8-in.*, 2 *1·4-in.*	2 (sub.)	19·26 *t*	905/1825	822
a.c.	**Victor Hugo** *Pl.* 30.	12,351	480½	70¼	27	28,486 *t.* B.	Lorient	1904	1907	1,229,932	6¾–4 H S.	2	5–3 H.S.	6	8 H.S.	5 H.S.	4 *7·6-in.*, 16 *6·4-in.*, 22 *1·8-* 2 *1·4-in.*	2 (sub.)	22·5 *t*	1320/2100	728
b.	**Voltaire** *Pl.* 26.	18,028	476	84	27	22,500 B. tur.	La Seyne	1909	1911	2,169,200	10–8 K.S.	2¾	8¾	..	12 K.S.	8¾ K.S.	4 *12-in.*, 12 *9·4-in.*, 16 *12-pr.*, 8 *3-pr.*, 2 *1-pr.*	2 (sub.)	20·66 *t*	960/2010	690
a.c.	**Waldeck-Rousseau**	13,780	515	70¼	27½	36,110 Nic. *t.*	Lorient	1908	1911	1,301,380	6½–3½	2½	5	4¾	6	5½	14 *7·6-in.*, 20 *2·4-in.*, 2 *1-pr.*	2 (sub.)	23·10 *t*	1242/2300	738

Battleships Tourville, Lille, Lyon, Duquesne were to be built under the Fleet Law; intended date of commencement was October, 1914; proposed armament, 16 13·4-in. guns in four turrets.

Pothuau, 5374 tons, gunnery training ship; Latouche-Tréville, 4681 tons, tender to gunnery ship.

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FRANCE.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
3rd cl. *cr.*	**Cassard**	3890	325½	45	20½	10,143 D'A.	Cherbourg	1896	1898	318,712	3	2 shield	6 *6·4-in.*, 4 *3·9-in.*, 10 *1·8-in.*, 3 *1·4-in.*, 2 M.	2	19·8 *t*	630	385
2nd cl. *cr.*	**Châteaurenault** shd.	7898	442¾	55¾	24½	24,300 *t.* N.S.	La Seyne	1898	1902	606,656	2½	2 shield	2 *6·4-in.*, 6 *5·5-in.*, 10 *1·8-in.*	2	24·19 *t*	1400 / 2100	625
g. v.	**Décidée**	635	184¾	26¼	12¼	1000 Nic.	Lorient	1899	1900	54,100	..	.	2 *3·9-in.*, 4 *2·5-in.*, 4 *1·4-in.*	..	13·0	99	99
2nd cl. *cr.*	**D'Entrecasteaux** shd.	7995	383½	58½	25¾	13,500	La Seyne	1896	1898	667,740	4	10–3 H.S.	2 *9·4-in.*, 12 *5·5-in.*, 12 *1·8-in.*	2	19·2 *t*	650	521
3rd cl. *cr.*	**Descartes** shd.	3970	326	42¼	21¾	9000 B.	St. Nazaire	1894	1896	334,725	1½	..	4 *6·4-in.*, 10 *3·9-in.*, 8 *1·8-in.*, 4 *1·4-in.*	2	21·0 *t*	552	386
„ „	**D'Estrées** shd.	2421	311¾	39¼	17¾	8500 Nor.	Rochefort	1897	1900	208,200	1½	..	2 *5·5-in.* 4 *3·9-in.* 8 *1·8-in.*, 2 *1·4-in.*	..	20·5 *t*	345 / 480	234
„ „	**Du Chayla** shd.	3890	325½	45	20½	10,009 D'A.	Cherbourg	1895	1897	315,835	3	2 shield	6 *6·4-in.*, *3·9-in.*, 10 *1·8-in.*, 3 *1·4-in.*, 2 M.	2	20·2 *t*	624	385
to. g b.	**Dunois**	889	256	27¾	12¾	7000 N.S.	Cherbourg	1897	1898	123,383	..	..	6 *2·5-in.*, 6 *1·8-in.*	..	23·0	137	128
2nd cl. *cr.*	**Guichen** shd.	8151	436¼	54¾	24½	24,000 D'A.	St. Nazaire	1897	1899	611,945	2½	2 shield	2 *6·4-in.*, 6 *5·5-in.*, 10 *1·8-in.*	2	23·0	1460	625

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FRANCE.—Cruising Ships, &c.—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
2nd cl. *cr.*	**Jurien de la Gravière** shd. *Pl.* 32.	5595	440	43½	22	17,000 Guyot	Lorient	1899	1901	475,979	3	..	8 *6·4-in.*, 12 *1·8-in.*	2	22·9 *t*	600 900	511
g. v.	**Kersaint** shd.	1223	226	34½	15	2200	Rochefort	1897	1898	107,933	..	..	1 *5·5-in.*, 5 *3·9-in.*, 7 *1·4-in.*	..	15·0	199	110
to. g. b.	**La Hire**	889	256	27¾	12¾	7000 N.S.	Cherbourg	1898	1899	123,383	..	..	6 *2·5-in.*, 6 *1·8-in.*	..	23·0	137	128
3rd cl. *cr.*	**Lavoisier**	2285	330¼	34½	17¾	6400 B.	Rochefort	1897	1899	202,024	1½	2 shield	4 *5·5-in.*, 2 *3·9-in.*, 8 *1·8-in.*, 2 *1·4-in.*, 4 M.	2	20·0	226	248
cr.	**I., II., III.** (Convoyeurs d'escadrilles)	4300	453½	45¼	16½	45.000 T.	Toulon, &c.	1915	..	..	1	..	8 *5·5-in.*	4 (sub.)	30·0	Oil	398

(1) Casabianca, mine-layer, sunk by a mine at the entrance to the Ægean Sea, June 3, 1915.
(2) Provence, auxiliary cruiser and transport, known as Provence II., mined or torpedoed in the Mediterranean, February 26, 1916. Auxiliaries Carthage and Indien sunk in the Mediterranean, respectively on July 4 and September 8, 1915.

Two cruiser-scouts, 6000 tons, and three additional of the new class of *convoyeurs d'escadrilles*, 4500 tons, were to be built. In addition are the cruisers Cosmao, Forbin and Surcouf, 1950 tons (1888–1895); and Friant, 3882 tons (1895); also the gun-vessel Surprise, 617 tons (1896), and several gun vessels and river gunboats.

Mine-layers Pluton and Cerbère, 560 tons, 6000 I.H.P., 20 knots; another laid down, 1914. Converted mining vessels, Cassini, 966 tons; *Casabianca*, 974 tons (1); Flamberge, 300 tons. Gunboat Balny, 214 tons; another provided for. Eight converted mine-sweepers. Foudre, 5984 tons, depôt ship for balloons and aeroplanes.

Merchant Auxiliary Cruisers.—La France, 22,500 register tons, 235 knots, Touraine, 8429 register tons, 19·5 knots, Lorraine, 11,869 register tons, 21 knots, Savoie, 11,200 register tons, 22½ knots, and *Provence*, 13,750 register tons, 22 knots (2), of the Compagnie Générale Transatlantique, and some other vessels; also the Amazone, Magellan, Tonkin, and other 17 and 17½ knot boats of the Messageries Maritimes, and the Burdigala, 18 knots, and Lutetia, 20·5 knots, of the Sud Atlantique line.

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GERMANY.

Very little is known of what is being carried on in the State and private shipyards of Germany, and the following ship tables cannot deal with the unknown. The First Lord emphasized our want of knowledge in the House of Commons. We know, it is true, definitely of many ships which are in existence and of certain others which have been destroyed, but concerning those which were being completed, and, naturally, those which may have been put in hand for rapid completion during the war, nothing has been disclosed.

It is reasonable to suppose that full pressure has been devoted to those ships which might be completed early in 1916, or at least before its close. The capital ships falling within the latter category are the battleships Ersatz Wörth (Schichau, Danzig), T (Howaldt, Kiel), and Ersatz Friedrich III (Germania, Kiel), and the battle-cruisers Hindenburg (Wilhelmshaven), and Ersatz Viktoria Luise (Hamburg) The three battleships were all to carry eight 15-in. guns, in four turrets, and the two battle-cruisers, it was believed, the same number of 12-in. guns. But the plans of the latter had not been made public, and there can be no doubt that they also now have 15-in. guns. It has, indeed, been alleged that the Hindenburg and her sister would mount a new 17-in. gun, which does not appear in any known German ordnance list, but remembering the conditions of visibility in the North Sea, it may be well to regard the statement with caution.

Much more likely is it that 15-in. guns have been substituted for the ten 12-in. 50 calibre guns which were mounted in the four battleships of the König class, of which only the Kronprinz was uncompleted at the outbreak of war. The additional weight for the guns alone would be about 300 tons, but the larger turrets, structural strengthenings to support stresses, involving additional material, and, with these, difficulties arising for the heavier ammunition, and considerations of stability and safety would present a difficult, though not an insoluble, problem to the constructors. In the following tables, therefore, though the four Königs are shown as mounting 12-in. guns, the possibility of a heavier armament must be kept in view. The ships are the König, Grosser Kurfürst, Markgraf and Kronprinz. In addition is the Salamis, which was being built at Stettin for Greece, and has doubtless been taken over. This ship was to have eight 14-in. American (Bethlehem) guns, but it will have been necessary to provide a new armament in Germany.

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Under the normal programme a battleship (Ersatz Kaiser Wilhelm II.) and a battle-cruiser would be laid down in 1915; also two light cruisers, Ersatz Nymphe and Ersatz Thetis.

In regard to unknown ships, the tables can of course throw no light on the situation, but, as we have built monitors and other classes of vessels, so may the Germans have put new classes of ships into the water. The probability is that this development is chiefly in the building of larger submersible and submarine vessels of great range, and better armament and defence.

In the tables those German ships and vessels which had been destroyed in action prior to the issue of the *Naval Annual* last year have been omitted. A list of them is subjoined, showing their displacement, date of completion and date of destruction:

Armoured Cruisers:

Blücher, 15,550 tons (1910), January 24, 1915; Friedrich Karl, 8858 tons (1904), December, 1914; Scharnhorst and Gneisenau, 11,420 tons (1908), December 8, 1914; Yorck, 9350 tons (1905), November 4, 1914.

Light Cruisers:

Ariadne, 2618 tons (1901), August 28, 1914; Dresden, 3554 tons (1908), March 14, 1915; Emden, 3554 tons (1909), November 9, 1914; Karlsruhe, 4820 tons (1913), November, 1914; Köln, 4280 tons (1910), August 24, 1914; Königsberg, 3350 tons (1907), destruction completed in the Rufigi River, July 4, 1915; Leipzig, 3200 tons (1906), December 8, 1914; Magdeburg, 4500 tons (1912), August 17, 1914; Mainz, 4323 tons (1910), August 28, 1914; Nürnberg, 3396 tons (1908), December 8, 1914.

Gun Vessels:

Iltis, 881 tons (1898), Jaguar, 900 tons (1899), and Tiger, 962 tons (1900), November, 1914.

The Goeben and Breslau appear under their new names in the Turkish list.

A note on the raiding cruisers Möwe and Greif will be found on page 175.

Notes are given with the German Flotilla lists relating to the boats lost.

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GERMANY.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	Braunschweig *Pl.* 38.	12,997	398½	73½	24½	16,000 T.S. & C.	Germania	1902	1904	1,157,500	9–4 K.S.	3	6 K.S.	6 K.S.	10–6 K.S.	6 K.S.	4 *11-in.*, 14 *6·7-in.*, 18 *3·4-in.*, 4 M.	6 (sub.)	18·0	700 / 1600†	660
b. cr.	Derfflinger*	28,000	700	96	27	100,000 (P. tur.)	Hamburg (Blohm & Voss)	1913	1915	..	7 K.S.	..	..	..	10 K.S.	..	8 *12-in.*, 12 *5·9-in.*, 12 *3·4-in.*	4	27·0	..	..
b.	Deutschland *Pl.* 37.	13,040	398½	72¾	24½	16,939 T.S. & C.	Germania	1904	1906	1,214,000	9½–4 K.S.	3	8 K.S.	6 K.S.	10–6 K.S.	6¾ K.S.	4 *11-in.*, 14 *6·7-in.*, 22 *3·4-in.*, 4 *1·4-in.*, 4 M.	6 (sub.)	18·5 *t*	700 / 1800†	736
b.	Elsass *Pl.* 38.	12,997	398½	72¾	24½	16,812 W.T.& C.	Danzig (Schichau)	1903	1905	1,157,500	9–4 K.S.	3	6 K.S.	6 K.S.	10–6 K.S.	6 K.S.	4 *11-in.*, 14 *6·7-in.*, 18 *3·4-in.*, 4 M.	6 (sub.)	18·7	800 / 1600†	660
b.	Friedrich der Grosse *Pl.* 35.	24,310	564¼	95¼	27¼	28,000 (A.E.G. tur.)	Hamburg (Vulcan)	1911	1912	..	13¾–5 K.S.	3	7 K.S	..	12 K.S.	7 K.S.	10 *12-in.*, 14 *5·9-in.*, 12 *3·4-in*, 4 L.	5	22·4 *t*	1000 / 3600	1073
b.	Friedrich III. (Ersatz)* *Pl.* 33.	29,000	..	..	..	40,000 T.	Kiel (Germania)	1914	..	..	..	..	..	..	..	..	8 *15-in.*, 16 *5·9-in.*, 12 *3·4-in.*, 4 *3·4-in.*, A.A.	5 (sub.)	22·0	1000 / 4800	..
a. c.	Fürst Bismarck	10,520	393½	66½	26	14,000 Dürr.	Kiel	1897	1900	..	7¾ K.S.	3	..	..	7¾ K.S.	4 K.S.	4 *9·4-in.*, 12 *5·9-in.*, 10 *3·4-in.*, 3 *1·4-in.*, 8 M.	6 (5 sub.)	19·0	1000†	565
b.	Grosser Kurfürst *Pl.* 34.	25,887	574	97	27¼	35,000 T.S.	Hamburg (Vulcan)	1913	1914	..	14–6 K.S.	3	8 K.S.	..	14 K.S.	..	10 *12-in*, 14 *5·9-in.*, 10 *3·4-in.*	5 (sub.)	22·0	1500 / 3000†	1150
b.	Hannover *Pl.* 37.	13,040	398½	73¾	25¼	22,492 T.S. *t.*	Wilhelmshaven	1905	1907	1,157,500	9½–4 K.S.	3	8 K.S.	6 K.S.	10–6 K.S.	6¾ K.S.	4 *11-in.*, 14 *6·7-in.*, 20 *3·4-in.*, 4 *1·4-in.*, 4 M.	6 (sub.)	19·16 *t*	700 / 1800†	736
b.	Helgoland *Pl.* 36.	22,500	546	93½	26½	28,000	Kiel (Howaldt)	1909	1911	..	11¾–4 K.S.	..	..	..	11 K.S.	6 K.S.	12 *12-in.*, 14 *5·9-in.*, 14 *3·4-in.*, 4 L.	6 (sub.)	20·5	900 / 3000	1107
b.	Hessen *Pl.* 38.	12,997	398½	73¾	24½	16,000 T.S. & C.	Kiel (Germania)	1903	1905	1,157,500	9–4 K.S.	3	6 K.S.	6 K.S.	10–6 K.S.	6 K.S.	4 *11-in.*, 14 *6·7-in.*, 18 *3·4-in.*, 4 M.	6 (sub.)	18·0	800 / 1600†	660
b. cr.	Hindenburg*	28,000	700	96	27	100,000 (P. tur.)	Wilhelmshaven	1915	1916	..	7 K.S.	..	..	..	10 K.S.	..	8 *15-in.*, 14 *5·9-in.*, 12 *3·4-in.*	4	27·0	1000 / 4800	..
b.	Kaiser *Pl.* 35.	24,310	564¼	27¼	27¼	28,000 (P. tur.)	Kiel.	1911	1912	..	13¾–5 K.S	3	7 K.S	..	12 K.S.	7 K.S.	10 *12-in.*, 14 *5·9-in.*, 12 *3·4-in.*, 4 L.	5 (sub.)	23·6 *t*	1000 / 3600	1073

* Dimensions and details doubtful. † Also liquid fuel. ‡ Exclusive of armament.

GERMANY.—Armoured Ships—*continued.*

Class	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			kts.	tons.	
b.	Kaiser Barbarossa					13,000 C.&T.	Danzig	1900	1901 1907	962,500	$11\frac{3}{4}$ H. N. S.	3	..	..	$9\frac{3}{4}$ H. N. S.	6 H.N.S.	4 *9·4-in.*, 14 *5·9-in.*, 12 *3·4-in.*, 12 *1·4-in.*, 8 M.	5 (sub.)	18·0	650 / 1050†	700
b.	Kaiser Friedrich III.					13,000 C.&T.	Wilhelmshaven	1896	1899												
b.	Kaiser Wilhelm II.	10,474	$377\frac{1}{4}$	$66\frac{3}{4}$	$25\frac{1}{2}$	13,000 C. & T.S.	Wilhelmshaven	1897	1900	962,500	$11\frac{3}{4}$ H. N. S.	3	..	..	$9\frac{3}{4}$ H. N. S.	6 H.N.S.	4 *9·4-in.*, 18 *5·9-in.*, 12 *3·4-in.*, 12 *1·4-in.*, 8 M.	5 (sub.)	18·0	650 / 1050†	700
b.	Kaiser Wilhelm der Grosse					13,000 C. & T.S.	Germania	1899	1901												
b.	Kaiser Karl der Grosse *Pl. 39.*					13,000 C. & T.S.	Hamburg (Blohm & Voss)	1899	1902												
b.	Kaiserin *Pl. 35.*	24,310	$564\frac{1}{4}$	$95\frac{1}{4}$	$27\frac{1}{4}$	28,000 (tur.)	Kiel (Howaldt)	1911	1913	..	$13\frac{3}{4}$–5 K.S.	3	7 K.S.	..	12 K.S.	7 K.S.	10 *12-in.*, 14 *5·9-in.*, 12 *3·4-in.*, 4 L.	5 (sub.)	21·0	1000 / 3600	1073
b.	König *Pl. 34.*	25,387	574	97	$27\frac{1}{4}$	35,000 T.S.	Wilhelmshaven	1913	1914	2,500,000	14–6 K.S.	3	8 K.S.	..	14 K.S.	..	10 *12-in.*, 14 *5·9-in.*, 10 *3·4-in.*, 2 M.	5 (sub.)	22·0	1500 / 3000†	1150
b.	König Albert *Pl. 35.*	24,310	$564\frac{1}{4}$	$95\frac{1}{4}$	$27\frac{1}{4}$	28,000 Schichau T.	Danzig (Schichau)	1912	1913	..	$13\frac{3}{4}$–5 K.S.	3	7 K.S.	..	12 K.S.	7 K.S.	10 *12-in.*, 14 *5·9-in.*, 12 *3·4-in.*	5 (sub.)	21·0	1000 / 3600	1073
b.	Kronprinz *Pl. 34.*	25,387	574	97	$27\frac{1}{4}$	35,000	Kiel (Germania)	1914	1915	2,500,000	14–6 K.S.	3	8 K.S.	..	14 K.S.	..	10 *12-in.*, 14 *5·9-in.*, 10 *3·4-in.*, 2 M.	5 (sub.)	22·0	1500 / 3000†	1150
b.	Lothringen *Pl. 38.*	12,997	$398\frac{1}{2}$	$73\frac{3}{4}$	$24\frac{1}{2}$	16,950 W.T.&C.	Schichau (Danzig)	1904	1906	1,157,500	9–4 K.S.	3	6 K.S.	6 K.S.	10–6 K.S.	6 K.S.	4 *11-in.*, 14 *6·7-in.*, 18 *3·4-in.*, 4 M.	6 (sub.)	18·54 *t*	800 / 1600†	600
b. cr.	Lützow*	28,000	700	96	27	100,000 P.T.	Danzig (Schichau)	1913	1915	..	7 K.S.	..	..	..	10 K.S.	..	8 *12-in.*, 12 *5·9-in.*, 12 *3·4 in.*	4	27·0	..	..
b.	Markgraf *Pl. 34.*	25,387	574	97	$27\frac{1}{4}$	35,000 T.S.	Bremen (Weser)	1913	1915	2,500,000	14–6 K.S.	3	8 K.S.	..	14 K.S.	..	10 *12-in.*, 14 *5·9-in.*, 10 *3·4-in.*, 2 M.	5 (sub.)	22·0	1500 / 3000†	1150
b.	Mecklenburg *Pl. 38.*	11,611	$393\frac{3}{4}$	$68\frac{1}{4}$	$24\frac{3}{4}$	14,000 C.T. & S.	Stettin (Vulcan)	1901	1903	1,061,250	9–4 K.S.	3	$5\frac{1}{2}$ K.S.	6 K.S.	10 K.S.	6 K.S.	4 *9·4-in.*, 18 *5·9-in.*, 12 *3·4-in.*, 12 *1·4-in.*, 8 M.	6 (sub.)	18·1 *t*	700 / 1450†	715
b. cr.	Moltke (1) *Pl. 41.*	22,640	$610\frac{1}{4}$	96	27	86,900 *t* (P. tur.)	Hamburg (Blohm & Voss)	1910	1911	..	$7\frac{1}{2}$–4 K.S.	..	..	..	8 K.S.	5 K.S.	10 *11-in.*, 12 *5·9-in.*, 12 *3·4-in.*	4 (sub.)	28·4 *t*	1000 / 3100	1013
b.	Nassau *Pl. 37.*	18,600	452	89	$26\frac{1}{2}$	25,800	Wilhelmshaven	1908	1909	1,825,000	$11\frac{3}{4}$–4 K.S.	..	.	..	12 K.S.	..	12 *11-in.*, 12 *5·9-in.*, 16 *3·4-in.*, 4 l.	6 (sub.)	20·7 *t*	950 / 2700	961
b.	Oldenburg *Pl. 36.*	22,500	546	$93\frac{1}{2}$	$26\frac{1}{2}$	28,000	Danzig (Schichau)	1910	1912	..	$11\frac{3}{4}$–4 K.S.	..	..	..	11 K.S.	6 K.S.	12 *12-in.*, 14 *5·9-in.*, 14 *3·4-in.*, 4 l.	6 (sub.)	22·2 *t*	900 / 3000	1107

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b.	Ostfriesland Pl. 36.	22,500	546	93½	26½	34,000	Wilhelmshaven	1909	1911	..	11¾-4 K.S.	..	..	..	11 K.S.	6 K.S.	12 *12-in.*, 14 *5 9-in.*, 14 *3·4-in.*, 4 l.	6 (sub.)	22·2 *t*	900 3000	1107
b.	Pommern (2) Pl. 37.	13,040	398½	72¾	25¼	20,400 T.S. *t.*	Stettin (Vulcan)	1905	1907	1,214,000	9½-4 K.S.	3	8 K.S.	6 K.S.	10-6 K.S.	6¾ K.S.	4 *11-in.*, 14 *6·7-in.*, 20 *3·4-in.*, 4 *1·4-in.*, 4 M.	6 (sub.)	19·21 *t*	700 1800†	736
b.	Posen Pl. 37.	18,600	452	89	26½	25,000	Kiel (Germania)	1908	1910	1,825,000	11¾-4 K.S.	..	..	..	12 K.S.	..	12 *11-in.*, 12 *5·9 in.*, 16 *3·4-in.*, 4 l.	6 (sub.)	20·5	950 2700	961
b.	Preussen Pl. 38.	12,997	389½	73¾	24½	18,374 W.T.& C.	Stettin	1903	1905	1,157,500	9-4 K.S.	3	6 K.S.	6 K.S.	10-6 K.S.	6 K.S.	4 *11-in.*, 14 *6·7-in.*, 12 *3·4-in.*, 12 *1·4-in.* & 8 M.	6 (sub.)	18·6 *t*	800 1600†	660
a. c.	***Prinz Adalbert*** (3)	8858	393½	65½	24	17,660 Dürr.	Kiel	1901	1903	885,000	4 K.S.	1½	3 K.S.	3 K.S.	6 K.S.	4 K.S.	4 *8 2-in.*, 10 *5·9-in.*, 12 *3·4-in.*, 3 *1·4-in.*, 4 M.	4 (3sub.)	20·3	950 1500†	504
a. c.	Prinz Heinrich Pl. 42.	8759	396	64¼	25¼	15,700 Dürr.	Kiel	1900	1902	730,000	4 K.S.	2½	4 K.S.	..	6 K.S.	4 K.S.	2 *9·4-in.*, 10 *5·9-in.*, 10 *3·4-in.*, 3 *1·4-in.*, 4 M.	4 (3sub.)	20·0	950	528
b.	Prinz-Regent Luitpold Pl. 35.	24,310	564¼	95¼	27¼	28,000 (P. tur.)	Kiel (Germania)	1912	1913	..	13¾-5 K.S.	3	7 K.S.	..	12 K.S.	5 K.S.	10 *12-in.*, 14 *5·9-in.*, 12 *3·4-in.*, 4 l.	5 (sub.)	21·0	1000 3600	1073
b.	Rheinland Pl. 37.	18,600	452	89	26½	25,000	Stettin (Vulcan)	1908	1910	1,825,000	11¾-4 K.S.	..	..	..	12 K.S.	..	12 *11-in.*, 12 *5·9-in.*, 16 *3·4-in.*, 4 l.	6 (sub.)	20·0	950 2700	961
a. c.	Roon	9350	403¼	65½	24	20,625 Dürr.	Kiel	1903	1905	875,000	4-3 K.S.	2¾	6 K.S.	4 K.S.	6 K.S.	4 K.S.	4 *8·2-in.*, 10 *5·9-in.*, 14 *3·4-in.*, 3 *1·4-in.*	4 (sub.)	21·17	750 1800†	638
b.	Schlesien						Schichau												19·2		
b.	Schleswig-Holstein Pl. 37.	13,040	398½	72¾	25¼	16,939 T.S. & C.	Germania	1906	1908	1,214,000	9½-4 K.S.	3	8 K.S.	6 K.S.	11-6 K.S.	6¾ K.S.	4 *11-in.*, 14 *6·7-in.*, 20 *3·4-in.*, 4 *1·4*, 4 M.	6 (sub.)	19·5 *t*	700 1800†	736
b.	Schwaben Pl. 38.	11,611	393¾	68¼	24¾	14,000 C.&T.S.	Wilhelmshaven	1901	1903	1,061,250	9-4 K.S.	3	5½ K.S.	6 K.S.	10-6 K.S.	6 K.S.	4 *9·4-in.*, 18 *5·9-in.*, 12 *3·4-in.*, 12 *1·4-in.*, 8 M.	6 (5sub.)	18·0	700 1450 †	715
b. cr.	Seydlitz Pl. 40.	24,640	656	93½	27	100,000 *t.* (P.T.)	Hamburg (Blohm&Voss)	1912	1913	..	11-4 K.S.	2	7 K.S.	8½ K.S.	11 K.S.	7½ K.S	10 *11-in.*, 12 *5·9-in.*, 12 *3·4-in.*	4 (sub.)	29·2 *t*	1100 3600	..
b.	T.* Pl. 33.	28,500	..	..	..	40,000 T.	Kiel (Howaldt)	1914	..	..	..	..	..	..	..	..	8 *15-in.*, 16 *5·9-in.*, 12 *3·4-in.*, 4 *3·4-in.* A.A.	5 (sub.)	22·0	1000 4800	..
b.	Thüringen Pl. 36.	22,500	546	93½	26½	34,000 *t.* (tur.)	Bremen (Weser)	1909	1911	..	11¾-4 K.S.	..	..	..	11 K.S.	6 K.S.	12 *12-in.*, 14 *5·9-in.*, 14 *3·4-in.*, 4 l.	6 (sub.)	21·07 *t*	900 3000	1107
b. cr.	Von der Tann (4)	18,700	561	87	26½	71,500 *t.* (P.tur.)	Hamburg (Blohm&Voss)	1909	1911	1,833,000	6 K.S.	..	..	..	..	6 K.S.	8 *11-in.*, 10 *5·9-in.*, 16 *3·4-in.*	4	27·6 *t*	1000 2800	910
b. cr.	Viktoria Luise (Ersatz)*	28,000	700	96	27	100,000	Hamburg	1914	..	..	7 K.S.	..	..	..	10 K.S.	..	8 *15-in.*, 14 *5·9-in.*, 12 *3·4-in.*	4	27·0	1000 4800	..
b.	Westfalen Pl. 37.	18,600	452	89	26½	26,792 (*t.*)	Bremen (Weser)	1908	1909	1,825,000	11¾-4	..	..	..	12	..	12 *11-in.*, 12 *5·9-in.*, 16 *3·4-in.*, 4 l.	6 (sub.)	20·2 *t*	950 2700	961
b.	Wettin						Schichau	1901	1902	1,071,250											
b.	Wittelsbach Pl. 38.	11,611	393¾	68¼	24¾	14,000 C.&T.S.	Wilhelmshaven	1900	1902	1,071,250	9-4 K.S.	3	5½ K.S.	6 K.S.	10 K.S.	6 K.S.	4 *9·4-in.*, 18 *5·9-in.*, 12 *3·4-in.*, 12 *1·4-in.*, 8 M.	6 (sub.)	18·0	700 1450 †	715
b.	Wörth (Ersatz)* Pl. 33.	28,500	..	..	..	40,000 T.	Danzig (Schichau)	1914	..	..	..	..	..	..	..	..	8 *15-in.*, 16 *5·9-in.*, 12 *3·4-in.*, 4 *3·4-in.* A.A.	5 (sub.)	22·0	1000 4800	..
b.	Zähringen Pl. 38.	11,611	393¾	68¼	24¾	15,000 C.&T.S.	Kiel (Germania)	1901	1902	1,071,250	9-4 K.S.	3	5½ K.S.	6 K.S.	10 K.S.	6 K.S.	4 *9·4-in.*, 18 *5·9-in.*, 12 *3·4-in.*, 12 *1·4-in.*, 8 M.	6 (sub.)	19·0	650 1000†	715
b.	N. (ex Salamis)	19,200	571	82	25¼	40,000 (tur.)	Stettin (Vulcan)	1914	..	..	10 K.S.	2½	7 K.S.	..	10 K.S.	7 K.S.	8 *14-in.* (?), 12 *6-in.*, 12 *12-pr.*	4 (sub.)	23·0	..	..

* Particulars doubtful or not known.

† Also liquid fuel.

(1) Moltke, torpedoed by submarine in the Baltic, but not sunk, August 19, 1915.

(2) Pommern, torpedoed by British submarine in the Baltic, but not sunk, July 2, 1915.

(3) Prinz Adalbert, sunk by British submarine near Libau, October 23, 1915.

(4) Von der Tann, is believed to have been sunk.

There are also the old battleships Brandenburg and Wörth, 9874 tons (1891-92). The following coast-defence armourclads, 4000 tons, launched 1889-95, are still on the list: Siegfried, Beowulf, Frithjof, Hildebrand, Heimdall Hagen, Odin, Aegir.

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GERMANY.—Cruising Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
3rd cl. *cr.*	**Amazone** . . shd.	2618	328	38½	16	8000 T.S.	Kiel (Germania) .	1900	1901	247,000	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	21·5 *t*	560	275
„ „	**Arcona** . . shd.	2657	328	38½	16	8000 T.S.	Bremen (Weser) .	1902	1903	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	21·0	700	281
„ „	**Augsburg** . . .	4280	401¾	46	16½	20,000 (tur.)	Kiel . . .	1909	1910	..	2	..	12 *4·1-in.*, 4 *2·1-in.*, 4 M.	2 (sub.)	27·0	400 900	379
„ „	**Berlin.** . . shd.	3200	341	43¼	16½	11,000 T.S.	Danzig . .	1903	1905	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	23·2 *t*	800	303
„ „	***Bremen*** (1) . . .	3200	341	43¼	16½	10,000 T.S.	Bremen (Weser) .	1903	1904	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	23·0	800	303
„ „	**Danzig** . . .	3200	341	43¼	16½	10,000 T.S.	Danzig . . .	1905	1907	254,500	2	..	10 *4·1-in.*. 14 M. . .	2 (sub.)	23·0	800	303
g.b. .	**Eber**	977	206¾	30¼	10¾	1300 T.S.	Danzig . . .	1903	1904	91,000	..	..	8 *3·4-in.*, 6 *1·4-in.*, 2 M.	..	13·0	240	130
3rd cl. *cr.*	**Frauenlob** . . shd.	2657	328	38½	16	8000 T.S.	Bremen (Weser) .	1902	1904	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	21·0	700	281
2nd cl. *cr.*	**Freya** (training) . .	5569	344½	57	20¾	10,000 Nic.	Danzig . . .	1897	1898	..	4 N.S.	4 N.S.	2 *8·2-in.*, 6 *5·9-in.*, 14 *3·4-in.*, 4 M.	3 (sub.)	19·5 *t*	825	268
3rd cl. *cr.*	**Gazelle** . . shd.	2603	328	38½	16¾	6400 Nic.	Kiel (Germania) .	1898	1898	225,000	2	..	10 *4·1-in.*, 14 M. . .	3 (sub.)	18·0	560	236
2nd cl. *cr.*	**Gazelle** (Ersatz)* . (? Wiesbaden)	5500	..	..	..	45,000	Stettin (?) . .	1914	Bldg.	..	..	..	10 *5·9-in.* . . .	2 (sub.)	27·5	1400	373
3rd cl. *cr.*	**Gefion** . .	3705	314½	42¾	20¾	9000	Danzig (Schichau) .	1893	1894	..	1½	..	10 *4·1-in.*, 6 *2·1-in.*, 4 M.	2	19·0	780	296
2nd cl. *cr.*	**Gefion** (Ersatz)* . .	5500	456	45	17	45,000	Stettin (Vulcan) .	1914	1915	..	2	4–2½ (side)	10 *5·9-in.* . . .	2 (sub.)	27·5	1400	373

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3rd cl. *cr.*	**Graudenz*** . . . *Pl.* 42.		5000	456	45	17	30,000 P.T.	Kiel (Germania) .	1913	1914	..	2	4–2½ (side)	12 *4·1-in.*, 2 M. . .	2 (sub.)	27·5	1400	373
„ „	**Hamburg** . .	shd.	3200	341	43¼	16½	11,500 T.S.	Stettin (Vulcan) .	1903	1904	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	23·28 *t*	800	303
2nd cl. *cr.*	**Hansa** (training) .	shd.	5791	345½	57¾	21¾	10,000 B.	Stettin (Vulcan) .	1898	1899	..	4 N.S.	4 N.S.	2 *8·2-in.*, 8 *5·9-in.*, 10 *3·4-in.*, 4 M.	3 (sub.)	19·5	825	636
„ „	**Hela** (Ersatz)* . .		5400	..	..	..	45,000	Kiel . . .	1914	1915	..	2	4–2½ (side)	10 *5·9-in.* . . .	2 (sub.)	27·5	1400	373
2nd cl. *cr.*	**Hertha** (training) .		5569	344½	57	21¾	10,000 B.	Stettin (Vulcan) .	1897	1898	..	4 N.S.	4	2 *8·2-in.*, 6 *5·9-in.*, 14 *3·4-in.*, 4 M.	3 (sub.)	19·5 *t*	825	636
„ „	**Kaiserin Augusta**	shd.	5956	387	52½	23	14,000	Kiel (Germania) .	1892	1896	..	3½	..	12 *5·9-in.*, 8 *3·4-in.*, 4 M.	3 (1 sub.)	21·0	850	439
3rd cl. *cr.*	**Kolberg** (2) . . .		4232	388¼	46	16½	20,000 (tur.)	Danzig (Schichau).	1908	1910	..	2	..	12 *4·1-in*, 4 *2·1-in.*, 4 M.	2 (sub.)	25·5	400 900	379
„ „	**Lübeck** . . .		3200	341	43¼	16½	14,000 T.S. tur.	Stettin (Vulcan) .	1904	1906	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	23·0	800	303
g. b. .	**Luchs**		962	206¾	30¼	10¾	1300 T.S.	Danzig . . .	1899	1900	91,000	2	..	8 *3·4-in.*, 6 *1·4-in.*, 2 M.	..	13·5 *t*	240	126
3rd cl. *cr.*	**Medusa** . .	shd.	2618	328	38½	16	8000 T.S.	Bremen (Weser) .	1900	1901	247,000	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	22·0	560	275
„ „	**München** . .	shd.	3200	341	43¼	16½	11,000 T.S.	Bremen (Weser) .	1904	1905	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	23·4 *t*	800	303
„ „	**Niobe** . . .	shd.	2603	328	38½	15	8000 T.S.	Bremen (Weser) .	1899	1901	217,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	20·0	560	275
2nd cl. *cr.*	**Niobe** (Ersatz)* . .		5500	..	..	..	45,000	..	1914	Bldg.	..	2	4–2½ (side)	10 *5·9-in.* . . .	2 (sub.)	27·5	1400	373
3rd cl. *cr.*	**Nymphe** . .	shd.	2618	328	38½	15	8000 T.S.	Kiel (Germania) .	1899	1901	217,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	20·0	560	275
g. b. .	**Panther**		962	206¾	30¼	10¾	1300 T.S.	Danzig . . .	1901	1902	91,000	..	..	8 *3·4-in.*, 6 *1·4-in.*, 2 M.	..	13·5 *t*	240	130

* Particulars unknown or doubtful.

(1) Bremen, sunk by British submarine in the Baltic, December 17, 1915.

(2) Kolberg, stated to have been sunk at the Dogger Bank.

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GERMANY.—Cruising Ships—*continued.*

Class	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			kts	tons.	
2nd cl. *cr.*	**Regensburg** . shd. *Pl.* 42.	5000	456	45	17	30,000 P.T.	Bremen (Weser) .	1912	1914	..	2	(4–2½ side)	12 *4·1-in.*, 2 M. . .	2 (sub.)	27·0	1400	373
3rd cl. *cr.*	**Rostock** . . . *Pl.* 42.	4820	456	45	17	26,000 P.T.	Kiel (Howaldt) .	1912	1913	..	2	(4–2½ side)	12 *4·1-in.*, 2 M. . .	2 (sub.)	29·2 *t*	1400	373
„ „	**Stettin** . . .	3396	354¼	43½	15¾	13,200 T.S. tur.	Stettin (Vulcan) .	1907	1907	..	2	..	10 *4·1-in.*, 8 *2·1-in.*, 4 M.	2 (sub.)	23·5	400/850	322
„ „	**Strassburg** . . . *Pl.* 42.	4500	446¼	44½	16¾	22,300 P. tur.	Wilhelmshaven .	1911	1912	..	2	(4–2½ side)	12 *4·1-in.*, 2 M. . .	2 (sub.)	27·0	1200	373
„ „	**Stralsund** . . . *Pl.* 42.	4500	446¼	44½	16¾	23,000 Berg. t.	Bremen (Weser) .	1911	1912	..	2	(4–2½ side)	12 *4·1-in.*, 2 M. . .	2 (sub.)	28·3 *t*	1200	373
„ „	**Stuttgart** . . .	3396	354¼	43½	15¾	13,200 T.S. tur.	Kiel . . .	1906	1908	..	2	..	10 *4·1-in.*, 8 *2·1-in.*, 4 M.	2 (sub.)	23·3 *t*	400/850	322
„ „	**Thetis**. . . shd.	2618	344½	38½	16	8000 T.S.	Danzig . . .	1900	1901	247,000	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	21·8 *t*	560	275
„ „	***Undine*** (1) . . shd.	2657	328	38½	16	8000 T.S.	Kiel (Howaldt) .	1902	1904	254,500	2	..	10 *4·1-in.*, 14 M. . .	2 (sub.)	21·0	700	281
2nd cl. *cr.*	**Victoria Luise** (trng.)	5569	344½	57	21¾	10,000 Dürr.	Bremen (Weser) .	1897	1898	..	4 H.S.	4 H.S.	2 *8·2-in.*, 6 *5·9-in.*, 14 *3·4-in.*, 4 M.	3 (sub.)	19·5 *t*	825	465
„ „	**Vineta** (training) . .	5791	345½	57¾	21¾	10,000 Dürr.	Danzig . . .	1897	1899	..	4 H.S.	4 H.S.	2 *8·2-in.*, 8 *5·9-in.*, 10 *3·4-in.*, 4 M.	3 (sub.)	19·5 *t*	825	465
3rd cl. *cr.*	**A, B** (names unknown)†	4300	401¾	46	16½	27,400 T.	Elbing (Schichau) .	1914	1915	..	1	3 (side)	8 *5·1-in.*, 4 *9-pr.* . .	5	27·5	1000	..

* Particulars doubtful.
(1) Undine, sunk by British submarine in the Baltic, November 7, 1915.

† Building for the Russian Navy at the outbreak of war and taken over.
(2) Albatross, run ashore by a Russian squadron off the east coast of Gothland, July 2, 1915.

The Imperial Yacht Hohenzollern, 4187 tons, 9460 I.H.P., 22 knots, carries 3 4·1-in., 12 1·9-in. Q.F. and 4 M. A new Imperial yacht was in hand. Cruisers Seeadler and Kondor (1550–1620 tons), 1892–94. The mining vessels Nautilus and *Albatross* (2) (2000 tons), Pelikan (2215 tons). Gunboat C, completed at Danzig, 1150 tons, 14 knots, 4 4·2-in., 2 M. Gunnery tenders Drache and Delphin, 765 tons, 15 knots. Submarine salvage vessel Vulkan; another begun in 1912.

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Merchant Cruisers (Auxiliaries to the German Navy).

To what Company belonging.	Name of Ship.	Register Tonnage.	Length.	Beam.	Draught of Water.	Indicated H.P.	Ocean Speed.	When Built.	Armament.
		tons.	ft. in.	ft. in.	ft. in.		knots.		
North German Lloyd	Kronprinzessin Caecilie	19,500	678 0	72 0	29 0	45,000	23½	1906	The armament is of 6-in. and smaller quick-firers.
	Kaiser Wilhelm II.	19,500	678 0	72 0	29 0	45,000	23½	1901	
	Kronprinz Wilhelm	14,800	640 0	66 0	26 3	30,000	23	1901	
	George Washington	26,000	..	..	..	20,000	19	1908	

The Hamburg-Amerika liners Imperator and Vaterland are classified as auxiliary cruisers. Many other vessels of less than 19 knots speed were in the list, including the Prinz Friedrich Wilhelm (16,900 register tons) and the Berlin (17,000 register tons), 18 knots.

The Berlin was interned at Trondhjem, Nov. 17, 1914. Prinz Eitel Friedrich and Kronprinz Wilhelm interned, Newport News. Many other vessels were taken over at the beginning of the war and converted into auxiliary cruisers and mine-layers. The Cap Trafalgar was sunk in a duel with the Carmania, Sept 14, 1914. The Königin Luise, mine-layer, was sunk by the Birmingham, Aug. 5, 1914. The Itolo, Rhios, Markomannia, and Soden have been sunk, and the Spreewald, Bethania, Græcia, Ophelia, and others captured.

THE MÖWE AND GREIF.—The identity of the raiding cruiser Möwe, which captured the Appam, and sent her into Norfolk, Virginia, besides sinking a very considerable volume of British shipping, afterwards returning to her home port, appears to have been established, and it is believed that she was not built for the German Navy, but converted from a trading vessel into an auxiliary cruiser. She possessed considerable speed, and carried a respectable armament behind her disguise. She has been described as of 3500 to 4000 tons. Two guns appear to have been mounted forward and four aft, and a 12-pdr. is said to have been on the poop. The bigger guns were possibly the German 4·1-in.; they may even have been 5·9-in. She had also two deck torpedo tubes. Capt. Barton, master of the Corbridge, estimated the guns to be of 7·4-in. calibre. The Greif, which was sunk in action with the Alcantara, March 25th, was disguised in a similar manner to the Möwe. She is said to have carried six 5·9-in. guns and to have had one or possibly two of 7·4-in. calibre. The Meteor, destroyed to escape capture, was a disguised raider of similar character. See page 12.

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GREECE.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
a c.	**Giorgios Averoff** *Pl. 43.*	9956	429¾	68¾	24¾	20,000 B	Leghorn (Orlando)	1910	1911	1,100,000	8–3½ K.S.	1¾	7	7	7–6	..	4 *9·2-in.*, 8 *7·5-in.*, 16 *3-in.*, 8 *1·8-in.*	3 (sub.)	24·0	700 / 1600	..
b.	**Hydra** . . .	4808	334½	51¾	23¼	7000	St. Nazaire La Seyne .	1889	1891 1900	..	11¾–4	2½	3	..	13½	..	3 *10·6-in.* Canet, 5 *5·9-in.*, 1 *3·9-in.*, 8 *2·5-in.*, 4 *1·8-in.*, 12 *1·4-in.*	3	17·0	600	400
b.	**Kilkis** (*ex* Mississippi)	13,000	375	77	24¾	13,607 B.&W.	Philadelphia	1905	1908	616,360	9–4 K.S.	3½–1 K.S.	7 K.S.	7 K.S.	10–7½ K.S.	6 K.S.	4 *12-in.*, 8 *8-in.*, 8 *7-in.*, 12 *3-in.*, 6 *3-pr.*, 10 smaller	2 (sub.)	17·1 *t.*	600 / 1750	725
b.	**Lemnos** (*ex* Idaho) *Pl. 43.*																				
b.	**Psara** . . .	4808	334½	51¾	23¼	7000	Havre . . La Seyne .	1890	1892 1897	..	11¾–4	2½	3	..	13½	..	3 *10·6-in.* Canet, 5 *5·9-in.*, 1 *3·9-in.*, 8 *2·5-in.*, 4 *1·8-in.*, 12 *1·4-in.*	3	17·0	600	400
b.	**Spetsai** . .	4808	334½	51¾	23¼	7000	Havre . . La Seyne .	1889	1891 1900	..	11¾–4	2½	3	..	13½	..	3 *10·6-in.* Canet, 5 *5·9-in.*, 1 *3·9-in.*, 8 *2·5-in.*, 4 *1·8-in.*, 12 *1·4-in.*	3	17·0	600	400

GREECE.—Cruising Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
cr.	**Conduriotis (Admiral)**	5500	..	..	..	25,000 T.	..	Pro.	..	..	2 (3 in. side)	..	8 *6-in.*, 4 *3-pr.*, some smaller.	2 (sub.)	25·5	650 / 1000	..
,,	**Lambros Katsonis**																
,,	**Helli** (*ex* Fei-Hung)	2600	330	42	13	6500 tur.	Camden, N.J. .	1912	1914	240,000	¾	..	2 *6-in.*, 4 *4-in.*, 2 *12-pr.*, 6 *3-pr.*	2	22·5	..	..

Torpedo depôt-ship.—Kanaris, 1100 tons, 500 I.H.P., 2 3·9-in. (Krupp) guns, 14 knots speed. Mine-layers Aigialla, Monemvassia, Nauplia. Three old gunboats and a corvette.

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ITALY.—Armoured Ships.

Class.	NAME	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	ins.	ins.	ins.	ins.	ins.			knots.	tons.	
a.c.	***Amalfi*** (1) . . . *Pl. 47.*	9956	429¾	68¾	24¾	20,800 B.	Genoa (Odero)	1908	1909	880,000	8–3½ K.S.	1¾	7 K.S.	7 K.S.	7–6 K.S.	..	4 *10-in.*, 8 *7·5-in.*, 16 *3-in.*, 2 M.	3 (sub.)	23·6 *t*	700 / 1500	687
b.	**Ammiraglio di St. Bon** *Pl. 47.*	9645	344½	69¼	24¾	13,500	Venice . .	1897	1901	..	9¾–4 H.S.	3–1½	6 H.S.	6 H.S.	9¾ H.S.	6 H.S.	4 *10-in.*, 8 *6-in.*, 8 *4·7-in.*, 2 *2·9-in.*, 8 *2·2-in.*, 12 *1·4-in.*, 2 M.	4	18·3 *t*	600	548
b.	***Benedetto Brin*** (2) . *Pl. 46.*	13,214	426½	78¼	27¼	20,400 B.	Castellammare	1901	1905	..	6–2 H.S.	3	6 H.S.	8 H.S.	10 H.S.	6 H.S.	4 *12-in.*, 4 *8-in.*, 12 *6-in.*, 16 *3-in.*, 8 *1·8-in.*, 4 M.	4 (sub.)	19·5 *t*	1000 / 2000	811
a.c.	**Carlo Alberto** . .	6396	325	59	23	13,220 *t*	Spezia . .	1896	1898	..	6–4½ H.S.	1½	6 H.S.	..	6 H.S.	4½ shields	12 *6-in.*, 6 *4·7-in.*, 2 *2·9-in.*, 10 *2·2-in.*, 10 *1·4-in.*, 2 M.	4	19·2 *t*	1000	500
b.	**Conte di Cavour** . *Pl. 45.*	22,340	557	92	28	24,000 Parsons B. & W.	Spezia . .	1911	1915	..	9½–4½ K.S.	1¾	6 K.S.	..	9½ K.S.	5 K.S.	13 *12-in.*, 18 *4·7-in.*, 14 *12-pr.*, 6 l. & M.	3 (sub.)	22·5	1000	999
b.	**Caracciolo*** .	28,000	670	98	..	48,000	Castellammare	Bldg.	..	..	13–7 K.S.	2	8 K.S.	..	10 K.S.	6 K.S.	8 *15-in.*, 20 *6-in.*, 24 *12-pr.*, 4 M.	..	25·0	Oil	1300
b.	**Cristoforo Colombo***						Genoa (Ansaldo)	Bldg.													
b.	**Dante Alighieri** . *Pl. 45.*	19,400	505	85	27¼	35,000 *t* Parsons Bl.	Castellammare	1910	1912	..	9½–4½ K.S.	1½	6 K.S.	..	10 K.S.	..	12 *12-in.*, 20 *4·7-in.*, 13 *12-pr.*	3 (2 sub.)	23·8 *t*	1000 / 2500	900
b.	**Doria** (Andrea) .	23,025	570	91	29	35,000 P. tur. Y.	Spezia . .	1913	1915	..	10½–6 K.S.	1¾	6 K.S.	..	9½ K.S.	5 K.S.	13 *12-in.*, 16 *6-in.*, 14 *12-pr.*, 6 l. & M.	3 (sub.)	23	1000 / 2500	1000
	Duilio (Caio) . *Pl. 44.*						Castellammare	1913	1915												
b.	**Emanuele Filiberto** . *Pl. 47.*	9645	344½	69¼	24¾	13,500	Castellammare	1897	1901	..	9¾–4 H.S.	3–1	6 H.S.	6 H.S.	9¾ H.S.	6 H.S.	4 *10-in.*, 8 *6-in.*, 8 *4·7-in.*, 2 *2·9-in.*, 8 *2·2-in.*, 12 *1·4-in.*, 2 M.	4	18·3 *t*	600	536
a.c.	**Francesco Ferruccio**. *Pl. 48.*	7294	344	59¾	23¼	13,500 Nic.	Venice . .	1902	1904	..	6–3 H.S.	1½	6 H.S.	5 H.S.	6 H.S.	6 H.S.	1 *10-in.*, 2 *8-in.*, 14 *6-in.*, 10 *2·9-in.*, 6 *1·8-in.*, 2 M.	4 (sub.)	20·0	655 / 1200	540
b.	**Francesco Morosini***	28,000	670	98	..	48,000	Leghorn (Orlando)	1915	..	..	13–7 K.S.	2	8 K.S.	..	10 K.S.	6 K.S.	8 *15-in.* 20 *6-in.*, 24 *12-pr.*, 4 M	..	25·0	Oil	1300
a.c.	***Giuseppe Garibaldi*** (3) *Pl. 48.*	7294	344	59¾	23¼	14,713 *t* Nic.	Genoa (Ansaldo)	1899	1901	..	6–3 H.S.	1½	6 H.S.	5 H.S.	6 H.S.	6 H.S.	1 *10-in.*, 2 *8-in.*, 14 *6-in.*, 10 *2·9-in.*, 6 *1·8-in.*, 2 M.	4 (sub.)	20·0	655 / 1200	540
b.	**Giulio Cesare** .	22,340	557	92	28	34,000 P. B.&W.	Genoa (Ansaldo)	1911	1914	..	9½–4½ K.S.	1¾	6 K.S.	..	9½ K.S.	5 K.S.	13 *12-in.*, 18 *4·7-in.*, 14 *12-pr.*, 6 l. & M.	3 (sub.)	23·0 *t*	1000	999
b.	**Leonardo da Vinci** *Pl. 45.*					P. Bl.	Genoa (Odero)	1911	1914												

* Particulars uncertain.

(1) Amalfi, sunk by Austrian submarine, July 7, 1915.

(2) Benedetto Brin, destroyed by internal explosion, Taranto, September 28, 1915.

(3) Giuseppe Garibaldi, sunk off Cattaro by Austrian submarine, July 18, 1915.

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ITALY.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			kts.	tons.	
b.	Marcantonio Colonna*	28,000	670	98	..	48,000	Genoa (Odero)	Bldg.	..	..	13–7 K.S.	2	8 K.S.	..	10 K.S.	6 K.S.	8 *15-in.*, 20 *6-in.*, 24 *12-pr.*, 4 M.	..	25·0	Oil	1300
a.c.	Marco Polo	4511	327	48¼	19½	10,543 *t*	Castellammare	1892	1894	344,400	4	1	4	4	4	..	6 *5·9-in.*, 4 *4·7-in.*, 6 *2·9-in.*, 2 *1·4-in.*, 2 M.	4	19·0 *t*	600	305
b.	Napoli / Regina Elena *Pl. 46.*	12,425	435½	73½	27¼	20,000 B.&W. / 20,000 B.	Castellammare / Spezia	1905 / 1904	1909 / 1907	1,120,000	9¾–4 H.S.	2	8 H.S.	8 H.S.	8 H.S.	6 H.S.	2 *12-in.*, 12 *8-in.*, 12 *3-in.*, 12 *1·8-in.*	2 (sub.)	22·0	1000/2000	711
a.c.	Pisa *Pl. 47.*	9956	429¾	68¾	24¾	18,000 B.	Leghorn (Orlando)	1907	1909	..	8–3½ K.S.	1¾	7 K.S.	7 K.S.	7–6 K.S.	..	4 *10-in.*, 8 *7·5-in.*, 16 *3-in.*, 2 M.	3 (sub.)	23·0	700/1600	687
b.	Regina Margherita *Pl. 46.*	13,214	426½	78¼	27¼	20,664 Nic.	Spezia	1901	1904	..	6 H.S.	3	6 H.S.	8 H.S.	8 H.S.	6 H.S.	4 *12-in.*, 4 *8-in.*, 12 *6-in.*, 16 *3-in.*, 8 *1·8-in.*, 4 M.	4 (sub.)	20·2 *t*	1000/2000	811
b.	Roma *Pl. 46.*	12,425	435½	73½	27¼	20,000 B. & W.	Spezia	1907	1909	1,120,000	9¾–4 H.S.	2	8 H.S.	8 H.S.	8 H.S.	6 H.S.	2 *12-in.*, 12 *8-in.*, 12 *3-in.*, 12 *1·8-in.*	2 (sub.)	22·0	1000/2000	711
a.c.	San Giorgio / San Marco *Pl. 48.*	9832	429¾	68¾	24¾	18000 Bl. / 18000 tur.	Castellammare	1908	1910	..	8–3½ K.S.	1¾	7 K.S.	7 K.S.	7–6 K.S.	7 K.S.	4 *10-in.*, 8 *7·5-in.*, 16 *3-in.*, 8 *1·8-in.*	3 (sub.)	22·5	700/1600	643
b.	Sardegna	13,640	411	76¾	28½	19,650 *t*	Spezia	1890	1895	1,057,440	4	3	4	2¾	14¼ *comp.*	..	4 *67-ton* (A.), 8 *5·9-in.*, 16 *4·7-in.*, 2 *2·9-in.*, 20 *2·2-in.*, 10 *1·4-in.*, 2 M.	5	20·1 *t*	1200	785
b.	Sicilia	13,087	400	76¾	28½	19,500	Venice	1891	1895	1,050,000	4	3	4	2¾	18 *comp.*	..	4 *67-ton* (A.), 8 *5·9-in.*, 16 *4·7-in.*, 2 *2·9-in.*, 20 *2·2-in.*, 10 *1·4-in.*, 2 M.	5	19·2 *t*	1200	785
a.c.	Varese *Pl. 48.*	7294	344	59¾	23½	13,500 B.	Leghorn (Orlando)	1899	1901	..	6–4½ H.S.	1½	6 H.S.	5 H.S.	6 H.S.	6 H.S.	1 *10-in.*, 2 *8-in.*, 14 *6-in.*, 10 *2·9-in.*, 6 *1·8-in.*, 2 M.	4	20·0	650/1200	500
a.c.	Vettor Pisani	6396	325	59	23	13,000	Castellammare	1895	1897	..	6 H.S.	1½	6 H.S.	..	6 H.S.	4½ shields	12 *6-in.*, 6 *4·7-in.*, 2 *2·9-in.*, 10 *2·2-in.*, 10 *1·4-in.*, 2 M.	4	20·0	600	504
b.	Vittorio Emanuele III *Pl. 46.*	12,425	435½	73½	27¼	20,000 B.	Castellammare	1904	1907	1,120,000	9¾–4 H.S.	2	8 H.S.	8 H.S.	8 H.S.	6 H.S.	2 *12-in.*, 12 *8-in.*, 12 *3-in.*, 12 *1·8-in.*	2 (sub.)	22·0	1000/2000	711

* Particulars uncertain.

The old battleship Re Umberto, 13,673 tons, was removed from the list prior to the war, preparatory to being offered for sale.

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ITALY.—Cruising Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armaments. Guns.	Armaments. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
to.cr.	**Agordat**	1292	287½	30½	11	8000	Castellammare	1899	1901	..	1	..	4 *4·7-in.*, 8 *2·2-in.*, 2 *1·4-in.*	2	22·0	160	158
to.g.b.	**Aretusa**	833	230	26¾	11¾	4420	Leghorn (Orlando)	1891	1892	72,920	1	..	1 *4·7-in.*, 6 *2·2-in.*, 3 *1·4-in.*	6	20·7 *t*	120	111
3rd cl. *cr.*	**Basilicata**	2460	251	41¾	17	4000	Castellammare	1914	1915	..	1	..	6 *6-in.*, 6 *12-pr.*, 2 *6-pr.*, 2 M.	..	16·5	500	..
„ „	**Campania**																
„ „	**Calabria**	2452	249¼	42	16¾	4094 *t*	Spezia	1894	1897	183,120	2	..	6 *4·7-in.*, 10 smaller	2	16·4 *t*	500	257
to.cr.	**Coatit**	1292	287½	30½	11	8160	Castellammare	1899	1901	..	1	..	4 *4·7-in.*, 8 *2·2-in.*, 2 *1·4-in.*	2	21·1 *t*	160	158
3rd cl. *cr.*	**Elba*** shd.	2689	272½	40¾	16½	7471 *t*	Castellammare	1893	1895	200,000	2	4½	6 *4·7-in.*, 4 *2·2-in.*, 2 *1·4-in.*, 1 M.	2	17·9 *t*	500	272
„ „	**Etruria**	2245	262½	39½	16½	7585 *t*	Leghorn (Orlando)	1891	1893	183,120	2	4½	4 *5·9-in.*, 6 *4·7-in.*, 1 *2·9-in.*, 8 *2·2-in.*, 10 *1·4-in.*, 2 M.	2	19·84 *t*	400	257
g.v.	**Governolo**	1235	185	33¾	13¾	1100	Venice	1894	1896	58,440	..	..	4 *4·7-in.*, 4 *2·2-in.*, 2 *1·4-in.*, 2 M.	..	13·0	200	131
to.g.b.	**Iride**	931	229½	27	10¼	4242	Castellammare	1891	1892	72,920	1	..	1 *4·7-in.*, 6 *2·2-in.*, 3 *1·4-in.*	6	19·6 *t*	120	111
3rd. *cl. cr.*	**Libia**	3690	341½	47	..	12,500	Genoa (Ansaldo)	1912	1913	..	1½	..	2 *6-in.*, 8 *4·7-in.*, 14 smaller.	2	22·0	630	300

* Ballooning service.

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ITALY.—Cruising Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
3rd cl. *cr.*	**Liguria**	2245	262½	39¼	16¾	7677 *t*	Genoa (Ansaldo)	1893	1894	183,120	2	4½	2 *5·9-in.*, 6 *4·7-in.*, 2 *3-in.*, 2 *2·2-in.*, 4 smaller	2	19·6 *t*	430	257
Scout	**Marsala**	3400	460½	42¾	13¼	22,500 P.tur.Bl.	Castellammare	1912	..	..	1½	..	6 *4·7-in.* and 6 *12-pr.*, mining equipment	2	28·0	800	240
to.g.b.	**Minerva**	833	246	27½	11¾	4800 W.T.	Genoa (Ansaldo)	1892	1893	72,720	1	..	1 *4·7-in.*, 6 *2·2-in.*, 3 *1·4-in.*	5	21·0	120	111
Flot. ldr.	**Mirabello (Carlo)**	1500	..	..	..	..	Genoa (Ansaldo)	1915	..	..	..	..	*6-in.* guns	..	35·0	..	..
Scout	**Nino Bixio**	3400	460½	42¾	13¼	22,500 Bl.Cur.t.	Castellammare	1911	..	..	1½	..	6 *4·7-in.* and 6 *12-pr.*, mining equipment	2	28·0	800	240
3rd cl. *cr.*	**Puglia**	2498	269	41	16¾	7000	Taranto	1898	1901	200,000	4½	1	4 *5·9-in.*, 6 *4·7-in.*, 1 *2·9-in.*, 8 *2·2-in.*, 8 *1·4-in.*, 2 M.	2	20·0	650	257
Scout	**Quarto**	3220	432	42¾	13¼	29,000 P.tur.Bl.	Venice	1911	1912	..	1½	..	6 *4·7-in.* and 6 *12-pr.*, mining equipment	2	28·6	450	240
Flot. ldr.	**Raccia (Carlo Alberto)***	1500	..	..	..	..	Genoa (Ansaldo)	1915	..	..	..	..	*6-in.* guns	..	35·0	..	..
„ „	**Riboty (Augusto).**																
g.v.	**Sebastiano Caboto**	800	250	31¾	9	2000	Palermo	1912	..	..	..	..	6 *12-pr.*, 4 M.	..	13·0	100	..

* Three others are also building.

Etna (3474 tons), converted into a training ship. Goito, Montebello, Partenope and Tripoli, mining vessels. *Subsidised auxiliary cruisers and despatch vessels.*—Nord America (La Veloce S.S. Co.), Regina Margherita, Galileo Galilei, Marco Polo, Umberto I., Cristoforo Colombo, Elettrico, Candia, Malta, Perseo, Orione, and some others (Navigazione Generale), Messina and Siracusa (19¾ knots), Catania and Palermo (23 knots), Principessa Mafalda (18½ knots) Italian Lloyd. The armament of these vessels is 2 2·2-in. Q.F., and 4 1·4-in. M. The coal and liquid fuel transports Bronte and Sterope (9490 tons) are completed. Oil tankers Giove and Nettuno, 6000 tons capacity, and five of 760 tons capacity, building. Anteo, submarine salvage vessel, lifting power 400 tons, completed at Schiedam. Provision is made for a river gunboat. Lagoon gunboats Brondolo and Marghera. A surveying vessel, Ammiraglio Magnaghi, 1800 tons, 14 knots, has been completed. Small vessels, Capitano Verri (*ex*-Thetis) and Bengazi (*ex*-Derna) captured from the Turks.

JAPAN.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.						in.	in.	in.	in.	in.	in.			knots.	tons.	
a.c.	Adzuma	9436	431½	59¼	24¾	17,000 B.	St. Nazaire	1899	1901	..	7–3½ H. s.	3	5 H.s.	..	6 H. s.	6 H.s.	4 *8-in.*, 12 *6-in.*, 12 *3-in.*, 8 *1·8-in.*	5 (4 sub.)	20·0	600 / 1275	482
b.	Aki *Pl. 50.*	19,800	400	83½	27½	24,000 My. tur.	Kure	1907	1911	..	9–5 K. s.	2–3	8	..	9	6	4 *12-in.*, 12 *10-in.*, 8 *6-in.*, 8 *12-pr.*, 8 l. and M.	5 (sub.)	20·5	..	940
"	Asahi *Pl. 53.*	14,765	400½	75¼	27½	16,000 B.	Clydebank	1899	1900	..	9–4 H. s.	4–2½	6 H.s.	12 H.s.	14 H. s.	6 H.s.	4 *12-in.*, 14 *6-in.*, 20 *12-pr.*, 8 *3-pr.*, 4 *2½-pr.*	4 (sub.)	18	700 / 1549	750
a.c.	Asama (1) *Pl. 57.*	9885	408	67	24½	19,000 *t*	Elswick	1898	1899	..	7–3½ H. s.	2	5 H.s.	..	6	6 H.s.	4 *8-in.*, 14 *6-in.* (A.), 12 *12-pr.*, 8 *2½-pr.*	5 (4 sub.)	22·1 *t*	600 / 1409	482
"	Aso (*ex* Bayan) *Pl. 56.*	7726	443	55¾	22	17,400 My. *t.*	La Seyne	1900	1902	..	8–3 K.s.	2	3 K.s.	..	7 K.s.	3 K.s.	2 *8-in.*, 8 *6-in.*, 22 small, l., and M.	2 (sub.)	22 *t*	750 / 11,000	570
b.	Fuji	12,649	374	73	26½	14,000	Thames	1896	1897	..	18–6 H. s.	4–2½	4 H.s.	..	14 H. s.	6 H.s.	4 *12-in.*, 10 *6-in.*, 20 *3-pr.*, 4 *4½-pr.*	5 (4 sub.)	19·2 *t*	1100	600
b.	Fuso*	31,000	658	94	28½	45,000 tur.	Kure	1914	..	..	12 K.s.	3	6 K.s.	..	12 K.s.	6 K.s.	12 *14-in.*, 16 *6-in.*, 4 *12-pr.* 3 A A.	6 (sub.)	22·5	..	..
b.	Huga* *Pl. 49.*						Nagasaki (Mitsubishi)	Bldg.	..												
b.c.	Haruna	27,500	704	92	27½	64,000 My. P. t. My. C. t.	Kobe (Kawasaki)	1913	1916	..	10 K.s.	2¾	..	..	10 K.s.	..	8 *14-in.*, 16 *6-in.*, 18 smaller and M.	8 (sub.)	27	1000 / 3500	1100
"	Hiyei *Pl. 54.*						Yokosuka	1912	1915												
b.	Hizen (*ex* Retvizan) *Pl. 53.*	12,700	374	72¼	25	16,000 My.	Philadelphia	1900	1902	..	9–4 K.s.	4	6–2 K.s.	9 K.s.	10 K.s.	5 K.s.	4 *12-in.*, 12 *6-in.*, 20 *3-pr.*, 6 *1-pr.*	2	18·0	800 / 2000	778
a.c.	Ibuki *Pl. 55.*	14,620	450½	75½	26¼	27,000 My. tur.	Kure	1907	1909	..	7–4 K.s.	2	5 K.s.	..	9 K.s.	..	4 *12-in.*, 8 *8-in.*, 14 *4·7-in.*, 3 *1·8-in.*, 2 l., 4 M.	3 (sub.)	22	2000	820
b.	Idzumo	9750	400	68½	24½	17,300 B. *t.*	Elswick	1899	1900	..	7–3½ H.N.S.	2½	5 H. N.S.	..	6 H. N.S.	6 H. N.S.	4 *8-in.*, 14 *6-in.*, 12 *12-pr.*, 8 *2½-pr.*	4 (sub.)	22·0 21·7 *t*	600 / 1412	672
"	Iwate							1900	1901												

* Particulars uncertain.

(1) Asama, stranded at Turtle Bay, Mexico, December 3, 1914, but subsequently floated and refitted.

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JAPAN.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
a.c.	**Ikoma** . . *Pl.* 55.	13,750	440	75	26	22,670 My.	Kure .	1906	1908	..	7–5 K.S.	1½	..	..	7 K.S.	..	4 *12-in.*, 12 *6-in.*, 12 *4·7-in.*, 2 *1·8-in.*, 2 l., 4 M.	3 (sub.)	21·0	600 / 2000	817
b.	**Ise*** . . *Pl.* 49.	31,000	658	94	28½	45,000 P. tur.	Kobe . (Kawasaki)	Bldg.	..	..	12 K.S.	3	6 K.S.	..	12 K.S.	6 K.S.	12 *14-in.*, 16 *6-in.*, 4 *12-pr.*, 3 A.A.	6 (sub.)	22·5	..	..
b.	**Iwami** (*ex* Orel) . *Pl.* 52.	13,516	367½	76	26	16,000 My.	Petrograd (Galerny)	1902	1904	..	9–4 K.S.	2½–1½	6 K.S.	9 K.S.	10 K.S.	6 K.S.	4 *12-in.*, 6 *8-in.*, 24 *3-in.*, and smaller.	3 (2 sub.)	18·0	800 / 2000	740
b.	**Kashima** . . *Pl.* 51.	16,400	425	78⅛	27	17,280 Nic.	Elswick .	1905	1906	..	9–4 K.S.	3–2½	6	6	9 K.S	6 K.S.	4 *12-in.*, 4 *10-in.*, 12 *6-in.*, 12 *12-pr.*, 3 *3-pr.*, 6 M., 2 l.	5 (sub.)	19·2 *t*	750 / 2150	980
a.c.	**Kasuga** . . *Pl.* 56.	7630	344	59¾	24¼	14,900	Sestri Ponente	1902	1904	760,000	6 H. N.S.	1½	6 H. N.S.	6 H. N.S.	6 H. N.S.	6 H. N.S.	1 *10-in.*, 2 *8-in.*, 14 *6-in.*, 10 *3-in.*, 6 *1·8 in.*, 2 M.	4	20·0	600 / 1150	500
b.	**Katori** . . *Pl.* 51.	15,950	420	78	27	18,500 *t*, Nic.	Barrow .	1905	1906	..	9–5 K.S.	3–2	6	6	10 K.S.	6 K.S.	4 *12-in.*, 4 *10-in.*, 12 *6-in.*, 10 *12-pr.*, 3 *3-pr.*, 6 M., 2 l.	5 (sub.)	19·5 *t*	750 / 1800	980
b.	**Kawachi** . . *Pl.* 50.	20,800	500	84	28	26,500 tur.	Kure .	1910	1912	..	12–9½ K.S.	2½	9 K.S.	..	12 K.S.	6 K.S.	12 *12-in.*, 10 *6-in.*, 8 *4·7-in.*, 16 small, l. and M.	5 (sub.)	20·5	900 / 2500	960
b.c.	**Kirishima** . . *Pl.* 54.	27,500	704	92	27½	64,000 My P. t.	Nagasaki . (Mitsubishi)	1913	1916	..	10–4 K.S.	2¾	..	..	10 K.S.	..	8 *14-in.*, 16 *6-in.*, 18 smaller and M.	8 (sub.)	28·0	1000 / 3500	1100
,,	**Kongo** . . *Pl.* 54.	27,500	704	92	27½	64,000 Y. P. t.	Barrow .	1913	1913	2,500,000	10–4 K.S.	2¾	..	..	10 K.S.	..	8 *14-in.*, 16 *6-in.*, 5 M., 16 smaller	8 (sub.)	25·0	1000 / 3500	1100
a.c.	**Kurama** . . *Pl.* 55.	14,620	450½	75½	26¼	27,000 My.	Yokosuka .	1907	1911	..	7–4 K. S.	2	5 K.S.	..	9 K. S.	..	4 *12-in.*, 8 *8-in.*, 14 *4·7-in.*, 3 *1·8-in.*, 2 l., 4 M.	3 (sub.)	22·0	2000	820
b.	**Mikasa** . .	15,362	400	76	27¼	16,431 B.	Barrow .	1900	1902	..	9–4 H.N.S.	3	6 H. N.S.	12 H. N.S.	14 H. N.S.	6 H. N.S.	4 *12-in.*, 4 *10-in.*, 10 *6-in.*, 20 small	4 (sub.)	18·5 *t*	700 / 1520	935

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c.d.	**Mishima** (*ex* Seniavine)	4792	265	52½	17	5000 My.	Petrograd	1894	1895	410,000	10	3	..	..	7–8	..	4 *10-in.*, 4 *4·7-in.*, 6 *1·8-in.*, 8 M.	4	16·0	400	318
a.c.	**Nisshin** *Pl.* 56.	7630	344	59¾	24¼	13,500	Sestri Ponente	1903	1904	760,000	6 H. N.S.	1½	6 H. N.S.	6 H. N.S.	6 H. N.S.	6 H. N.S.	4 *8-in.*, 14 *6-in.*, 10 *3-in.*, 6 *1·8-in.*, 2 M.	4	20·0	600 / 1150	500
c.d.	**Okinoshima** (*ex* Apraxine)	4126	277½	52½	17½	5757 *t.*	Petrograd (New Admiralty)	1896	1898	..	10 H. S.	3	..	..	7¾ K. S.	..	3 *10-in.*, 4 *4·7-in.*, 12 *1·8-in.*, and smaller	4	15·0 *t*	215	318
b.	**Satsuma** *Pl.* 51.	19,350	450	83½	27½	19,370 My.	Yokosuka	1906	1910	..	9–5 K. S.	2–3	8	..	9	6	4 *12-in.*, 12 *10-in.*, 12 *4·7-in.*, 4 *12-pr.*, 8 l. and M.	5 (sub.)	18·5	1000 / 2500	940
b.	**Settsu** *Pl.* 50.	20,800	500	84	28	26,500 tur.	Yokosuka	1911	1912	..	12–9½ K.S.	2½	9 K.S.	..	12 K.S.	6 K.S.	12 *12-in.*, 10 *6-in.*, 8 *4·7-in.*, 16 small, l. and M.	5 (sub.)	20·5	900 / 2500	960
b.	**Shikishima** *Pl.* 53.	14,850	400	75¼	26½	16,355 B.	Thames	1898	1899	..	9–4 H.N.S.	4–2½	6 H. N.S.	12 H. N.S.	14	6 H. N.S.	4 *12-in.*, 14 *6-in.*, 20 *12-pr.*, 8 *3-pr.*, 4 *2½-pr.*, 8 M.	5 (4 sub.)	18·3	700 / 1722	741
b.	**Suo** (*ex* Pobieda) *Pl.* 52.	12,674	401¼	71½	26	14,500 My.	Petrograd (Baltic)	1900	1901	..	9½–4 H. S.	2¾	9 H. S.	9 H. S.	9 H. S.	6 H.S.	4 *10-in.*, 10 *6-in.*, 22 *12-pr.*, and smaller	2 (sub.)	18·0	800 / 2056	732
a.c.	**Tokiwa** *Pl.* 57.	9850	408	67	24½	20,556 *t.*	Elswick	1898	1899	..	7–3½ H. S.	2	5 H.S.	..	6 H. S.	6 H.S.	4 *8-in.*, 14 *6-in.* (A.), 12 *12-pr.*, 8 *2½-pr.*	5 (4 sub.)	23·0	600 / 1409	500
„	**Tsukuba** *Pl.* 55.	13,750	440	75	26	23,260 My.	Kure	1905	1907	..	7–5 K. S.	1½	..	..	7 K. S.	..	4 *12-in.*, 12 *6-in.*, 12 *4·7-in.*, 2 *1·8 in.*, 2 l., 4 M.	3 (sub.)	21·0	600 / 2000	817
„	**Yakumo**	9850	407¾	64¼	23¾	16,000 B.	Stettin	1899	1901	..	7–3½ H. S.	2½	5 H.S.	..	6 H. S.	6 H.S.	4 *8-in.* (A.), 12 *6-in.*, 12 *12-pr.* (A.), 8 *2½-pr.*	5 (4 sub.)	20·0	600 / 1100	500
b.	**Yamashiro*** *Pl.* 49.	31,000	658	94	28½	45,000 tur.	Yokosuka	1915	..	..	12 K.S.	3	6 K.S.	..	12 K.S.	6 K.S.	12 *14-in.*, 16 *6-in.*, 4 *12-pr.* 3 A.A.	6 (sub.)	22·5	..	..

* Particulars uncertain.

N.B.—The battleships Sagami (*ex* Peresviet) and Tango (*ex* Poltava), which were captured in the war of 1904–5, have been retroceded to Russia; also the cruiser Soya (*ex* Varyag).

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JAPAN.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
l.cr.	**Akashi**	2800	295¼	41¾	16½	8500	Yokosuka	1897	1898	327,000	2	4½ shield	2 *6-in.* (A.), 6 *4·7-in.*, 10 *3-pr.*, 2 *2½-pr.*, 4 M.	2	20·0	200/544	300
t.g.b.	**Chihaya**	1250	273	31½	10	5500 Nor.	Yokosuka	1900	1901	..	..	..	2 *4·7-in.*, 4 *12-pr.*	2	21·0	123/344	170
l.cr.	**Chitose**	4992	395	49	18	15,500	San Francisco	1898	1899	205,200	4½	4½ shield	2 *8-in.*, 10 *4·7-in.*, 12 *12-pr.*, 6 *2½-pr.*	4	22·5	350/1000	405
,,	**Hirado**	4950	440	46½	16¾	22,500 P. tur. My.	Kobe	1911	1912	..	2¼	..	8 *6-in.*, 4 *3-in.*, 4 M.	3 (sub.)	26	500/1000	390
,,	**Kasagi**	4503	374½	48¾	19	15,492	Philadelphia	1898	1899	205,200	4½–1¾	4½ shield	2 *8-in.*, 10 *4·7-in.*, 12 *12-pr.*, 6 *1·8-in.*	4	22·7 *t*	350/1000	405
Scout	**Mogami**	1329	300	31½	9¾	8000 turbines	Sasebo	1907	1908	..	2½	..	2 *4·7-in.*, 4 *12-pr.*	2	23·0	..	180
l.cr.	**Niitaka**	3420	235½	44	16½	10,000 Nic.	Yokosuka	1902	1905	..	2½	..	6 *6-in.*, 10 *3-in.*, 4 *2½-pr.*	..	20·0	600	320
,,	**Otowa**	3000	321	42½		10,000 My.	Yokosuka	1903	1904	..	2	..	2 *6-in.*, 6 *4·7-in.*, 4 *12-pr.*, 2 M., 2 l.	..	20·0	600/875	310
g.b.	**Saga**	785	..	..	..	1600	Sasebo	1912	1913	..	..	..	1 *4·7-in.*, 3 *3-in.*, 3 M.	..	15	..	..

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cr.	**Shikuma**	4950	440	46½	16¾	22,500 Cur. t. My.	Sasebo . .	1911	1912	..	2¼	..	8 *6-in.*, 4 *3-in.*, 4 M. . .	3 (sub.)	26	500/1000	390
„	**Suma**	2657	306¾	40	16¼	8500	Yokosuka . .	1896	1898	237,000	2 shield	4½	2 *6-in.*, 6 *4·7-in.*, 12 *3-pr.*, 4 M.	2	20·0	200	300
cr.	**Tone**	4035	400	48½	16¾	15,000 My.	Sasebo . .	1907	1908	..	2–3	..	2 *6-in.*, 10 *4·7-in.*, 2 *12-pr.*, 2 1.	3	23·0	750/1000	392
Scout	**Tsugaru** (*ex* Pallada) . . .	6630	413¼	55¾	21	11,610 My.	Petrograd (Galerny)	1899	1901	..	2½	..	8 *6-in.*, 20 *12-pr.*, 8 *1-pr.* .	4	20·0	900/1400	422
cr.	**Tsushima** . .	3420	235½	44	16½	10,000 Nic.	Kure . .	1902	1904	..	2½	..	6 *6-in.*, 10 *3-in.*, 4 *2½-pr.* .	..	20·0	600	320
g.b.	**Uji**	620	180½	27¾	10	1000 B.	Kure . .	1903	1905	..	..	..	4 *12-pr.*, 3 M. . . .	..	13·0	100	150
cr.	**Yahagi** . . .	4950	440	46½	16¾	22,500 P. tur. My.	Nagasaki . .	1911	1912	..	2¼	..	8 *6-in.*, 4 *3-in.*, 4 M. . .	3 (sub.)	26	500/1000	390
„	**Yodo**	1230	280	32	9¾	6500	Sasebo . .	1908	1909	..	..	..	2 *4·7-in.*, 4 *12-pr.* . .	2	22·0	..	180

Submarine depôt ship Karasaki (*ex* Ekaterinoslav), 10,500 tons, 5 light guns.
Repair ship Kwanto Maru. Amakusa, mining vessel (*ex* Amur).
Mercantile auxiliaries: Umegaku Maru, Sakaki Maru, Sakura Maru, 3200 tons, 21 knots; Tsijo Maru, Tenjo Maru, 13,400 tons, 20 knots.
Also the cruisers Akitsushima, Hashidate and Itsukushima, 3150–4277 tons, dating from 1893, and the gunboats Tatsuta, 875 tons; Toba, 250 tons; Fushimi, 180 tons; and Sumida, 126 tons.

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NETHERLANDS.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots	tons.	
a.g.b.	Brinio	520	171	28	9¼	1200	Amsterdam	1912	1915	..	2 K.S.	¾	..	..	..	..	4 4·1-in., 2 M.	..	16	Oil	49
„	Bruno							1913													
„	Friso																				
c.d.s.	De Ruyter Pl. 58.	5014	316¾	51½	21¾	6377 t.	Amsterdam	1900	1904	347,500	6–4 H.N.S.	2	..	..	10 H.N.S.	3 H.S.	2 9·4-in., 4 5·9-in., 10 2·9-in., 4 1·4-in.	3 2 sub.	16·5 t	680	444
„	Evertsen	3464	282¾	47	16¾	4735	Flushing	1894	1896	..	6–4 H.S.	2	..	..	9½ H.S.	3 H.S.	3 8·2-in., 2 5·9-in., 6 2·9-in., 8 1·4-in.	3	16·0	280	268
„	Hertog Hendrik Pl. 58.	5014	316¾	51½	21¾	6000 Y.	Amsterdam	1902	1903	347,500	6 H.N.S.	2	..	..	10 H.N.S.	3 H.S.	2 9·4-in., 4 5·9-in., 10 2·9-in., 4 1·4-in., 2 l.	3	16·5	680	444
„	Jacob van Heemskerck	5211	316¾	51½	21¾	6000 Y	Amsterdam	1906	1908	347,500	6–4 H.N.S.	2	..	..	10 H.N.S.	..	2 9·4-in., 6 5·9-in., 10 12-pr., 4 1·4-in., 2 l.	3 2 sub	16·0	680	441
„	Koningin Regentes Pl. 58.	5014	316¾	51½	21¾	7290 Y.	Amsterdam	1900	1902	347,500	6–4 H.N.S.	2	..	..	10 H.N.S.	..	2 9·4-in., 4 5·9-in., 6 2·9-in., 4 1·4-in., 2 l.	3 2 sub.	16·5	680	444
„	Kortenaer	3464	282¾	47	16¾	4400	Amsterdam	1894	1896	..	6 H.S.	2	..	..	9½ H.S.	3 H.S.	3 8·2-in., 2 5·9-in., 6 2·9-in., 8 1·4-in.	3	16·0	280	260
„	Marten Tromp Pl. 58.	5211	316¾	51½	21¾	6377 t	Amsterdam	1904	1906	347,500	6–4 H.N.S.	2	..	..	10 H.N.S.	3 H.S.	2 9·4-in., 4 5·9-in., 10 2·9-in., 4 1·4-in.	3 2 sub.	16·5 t	680	444
„	Piet-Hein	3464	282¾	47	16¾	4736 t	Rotterdam	1894	1896	..	6 H.S.	2	..	..	9½ H.S.	3 H.S.	3 8·2-in., 2 5·9-in., 6 2·9-in., 8 1·4-in.	3	16·2 t	280	260
„	Reinier Claeszen	2440	229½	44¼	15	350	Amsterdam	1891	1892	..	4¾–2 comp.	3	..	..	11 comp.	6 comp. shield	1 8·2-in. (K.), 1 6·6-in., 1 2·9-in., 4 1·9-in., 3 1·4-in.	2	12·5 t	88	160
„	De Zeven Provincien	6525	339½	56	20¼	7500 Y.	Amsterdam	1909	1910	..	6–4 K.S.	2	..	..	10 K.S.	..	2 11-in., 4 5·9-in., 10 12-pr.	..	16·0	700	440

A battleship or battle-cruiser of Dreadnought type is proposed to be built for service in the Dutch East Indies, and a second ship of the class is contemplated.

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NETHERLANDS.—Cruising Ships.

((I) denotes vessels of the Dutch Indian Navy.)

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	inches.	inches.			knots.	tons.	
cr. . . .	**Friesland** . . .	3847	307	49	17¾	10,000 Y.	Rotterdam .	1896	1898	285,700	2	..	2 *5·9-in.*, 6 *4·7-in.*, 4 *2·9-in.*, 8 *1·4-in.*, 4 smaller.	4	19·8 *t*	400	333
„ . . .	**Gelderland.** . . .	3969	310¾	49	17¾	10,000 Y.	Feijenoord .	1898	1900	..	2¼	..	2 *5·9-in.*, 6 *4·7-in.*, 4 *2·9-in.*, 4 *1·4-in.*, 4 M.	4	20·0	850	333
„ . . .	**Holland** . . .	3847	307	49	17¾	10,000 Y.	Amsterdam .	1896	1898	285,700	2	..	2 *5·9-in.*, 6 *4·7-in.*, 4 *2·9-in.*, 8 *1·4-in.*, 4 M.	4	19·6 *t*	400	333
g. v. . . .	**Koetel (I)** . . .	778	179	30¾	11½	1412	Amsterdam .	1898	1899	..	..	..	3 *4·7-in.*, 2 *2·9-in.*, 4 *1·4-in.* .	..	13·0	120	97
cr. . . .	**Noord-Brabant** . .	3969	310¾	49	17¾	10,000 Y.	Flushing .	1899	1901	..	2¼	..	2 *5·9-in.*, 6 *4·7-in.*, 4 *2·9-in.*, 4 *1·4-in.*, 4 M.	4	20·0	850	333
„ . . .	**Sumatra (I)** . .	1693	229½	37	14	3750	Amsterdam .	1890	1892	..	1½	..	1 *8·2-in.*, 1 *5·9-in.*, 2 *4·7-in.*, 1 *2·9-in.*, 4 *3-pr.*, 2 M.	..	17·0	225	183
„ . . .	**Utrecht** . . .	3969	310¾	49	17¾	10,000	Amsterdam .	1898	1900	..	2¼	..	2 *5·9-in.*, 6 *4·7-in.*, 4 *2·9-in.*, 4 *1·4-in.*, 4 M.	4	20·0	850	333
„ . . .	**Zeeland** . . .	3847	307	49	17¾	10,589 Y. *t*	Flushing .	1897	1898	285,700	2	..	2 *5·9-in.*, 6 *4·7-in.*, 4 *2·9-in.*, 8 *1·4-in.*, 4 M.	4	19·4 *t*	400	333

About 22 gun-vessels of small value are in home waters. Gun-vessels of the Indian Navy: Mataram (797 tons), 1897; Serdang (797 tons), 1898; Edi (787 tons), 1898; Glatik (417 tons), 1894; Havik, Snip, Sperwer, Kwartel, Favant, and Valk, launched between 1894 and 1903; Argus and Cycloop (438 tons), 1893, many older. Hydrograaf, surveying ship. Surveying vessels in the East Indies: Borneo, 787 tons, Lombok and Sumbawa, 591 tons. Mine-layers in the East Indies: Assahan, 787 tons, Siboga, 778 tons. Two (670 tons, 10 knots) mine-layers, Medusa and Hydra, launched 1911, 3 3-in. guns, 65 mines. A mother ship for submarines has been built.

N.B.—In July, 1915, the States General voted a credit of £500,000, as an instalment of £2,333,000, for two cruisers of 6000 tons (30 knots, 10 6-in. guns, 4 12-pr. A.A, 4 M.), four submarines (800 tons submerged, 6 tubes), six seaplanes, and exceptional needs of mobilisation. In November it was stated in official Dutch circles that plans for the two cruisers, tendered by Krupp, had been accepted, one cruiser to be built at Amsterdam and the other at Flushing. Engineers from Krupp's arrived at Amsterdam to superintend the work.

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NORWAY.—Armoured Ships.

Class.	NAME	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			in.	in.			knots.	tons.	
c.d.s.	Eidsvold . / Norge . *Pl.* 58.	3847	290	50½	16½	4500 Y.	Elswick	1900	1901	350,000	6 H.N.S.	2	..	..	6 H.N.S.	6 H.N.S.	2 *8·2-in.*, 6 *5·9-in.*, 8 *12-pr.*, 6 *3-pr.*	2 sub.	16·5 *t*	400 / 600	261
"	Harald Haarfagre .	3556	280	48½	16½	3700	Elswick	1896	1898	300,000	7 H.S.	2	..	..	8 H.S.	..	2 *8-in.*, 6 *4·7-in.*, 6 *12-pr.*, 6 *1½-pr.*	2 sub.	17·2 *t*	200 / 500	248
"	Torkenskjold							1897	1899												

Cruising Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
g.b.	Æger . . .	387	108½	29½	8	450	Horten .	1892	1893	..	1½	..	1 *8·2-in.*, 1 *2·7-in.*, 2 *1·9-in.* . .	..	9·0	..	43
g.v.	Frithjof . .	1349	216½	32¾	13¼	300	Horten .	1896	1898	..	..	..	2 *4·7-in.*, 4 *2·9-in.*, 4 *1·4-in.*, 2 l. . .	3 sub.	15·0	120	156
g.b.	Heimdal . .	620	167¼	26¾	11¾	700	Christiania .	1892	1893	..	..	..	4 *2·5-in.*	..	12·0	92	62
g.v.	Viking . .	1095	203½	30½	13	2000	Horten .	1891	1892	..	1½	..	2 *5·9-in.* (A.), 4 *2·5-in.*, 4 *1·4-in.*, 2 M. .	3	15·0	140	156

Eleven Gunboats, of 189 to 280 tons, and of 180 to 450 I.H.P., armed with one large gun and machine guns.

PORTUGAL.—Cruising Ships.

Class.	NAME	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Normal Coal Supply.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
cr. . .	**Adamastor** .	1962	250	35	14	4000	Leghorn .	1896	1897	..	3	5	2 *5·9-in.*, 4 *4·7-in.*, 4 *2·2-in.*, 4 M.	3	18·0 *t*	270	232
„ . .	**Almirante Reis** (ex Dom Carlos I.)	4100	360	46½	17½	12,500 Y.	Elswick .	1898	1899	..	4	..	4 *5·9-in.* (A.), 8 *4·7-in.*, 12 *3-pr.*, 6 *1-pr.*, 4 M.	5 (3 sub.)	22·0	1000	260
g.v. . .	**Dom Luiz I.** .	710	151	27¼	13¾	512	Lisbon . .	1895	1896	..	..	..	4 *4·1-in.*, 3 *2·5-in.*, 3 M. .	..	9·9	100	120
„ . .	**Patria** . .	620	196¾	27½	8½	1800	Lisbon . .	1903	1905	..	..	..	4 *4-in.*, 6 *1·8-in.* . .	..	15·0	..	160
cr. . .	**Republica.** (ex Rainha Amelia)	1640	246	36	14¾	5000 Nor.	Lisbon . .	1899	1901	..	1	..	4 *5·9-in.*, 2 *3·9-in.*, 2 *3-pr.*, 4 M.	2	20·6 *t*	300	250
„ . .	**São Gabriel** .	1772	246	35½	14¼	4000 N.S.	Havre . .	1898	1899	..	1½	..	2 *5·9-in.* (*Canet*), 4 *4·7-in.*, 8 *1·8-in.*, 2 M.	1	17·5 *t*	500	200

The old armoured ship Vasco da Gama, 2972 tons, completed at Blackwall in 1878, and partly reconstructed at Leghorn in 1903, possesses no value. Two cruisers of 2500 tons and 20 knots, 2 6-in. and 6 4-in. guns, are proposed. There are several small gunboats for Mozambique and Timor, and some river-gunboats. The Dom Luiz, Patria, Save, and Lurio are the most modern and efficient. Mine-layer, Vulcano, 110 ft. long, 19 ft. 6 in. beam, 400 I.H.P., 12 knots, launched by Thornycroft, 1909.

RUSSIA.—Armoured Ships.

(B.S., Black Sea Fleet.)

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkheads.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns. B.L.R. are of Russian Krupp pattern.	Armament. Torpedo Tubes.	Speed.	Normal Coal Supply.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
a.c.	**Admiral Makaroff**	7887	443	75¾	23	19,000 B.	La Seyne	1906	1908		6¾–4 K.S.	2	3 K.S.	6¾ K.S.	5¾ K.S.	3 K.S.	2 *8-in.*, 8 *6-in.*, 20 *12-pr.*, 4 *6-pr.*, 6 l. and M.	2 sub.	22·5 *t*	750 / 1020	573
b.	**Alexander III** (Imperator), B.S. *Pl. 59.*	22,500	551¼	89½	27¼	26,500 tur.	Nikolaieff (Ivanoff)	1914	1915	..	12 K.S.	3	8 K.S.	..	12 K.S.	5 K.S.	12 *12-in.*, 20 *5-in.*	4 sub.	21·0	3000	..
b.	**Andrei Pervozvannyi** *Pl. 61.*	17,400	429¾	79¾	28½	17,600 B.	Petrograd (Galerny)	1906	1910	1,170,000	11–6 K.S.	2½	5 K.S.	..	12 K.S.	7 K.S.	4 *12-in.*, 14 *8-in.*, 12 *4·7-in.*, 14 smaller	3 sub.	18·0	1500	933
a.c.	**Bayan**	7887	443	75¾	23	16,500 B.	Petrograd (New Admiralty)	1907	1910	..	6¾–4 K.S.	2	3 K.S.	6¾ K.S.	5¾ K.S.	3 K.S.	2 *8-in.*, 8 *6-in.*, 20 *12-pr.*, 4 *6-pr.*, 6 l. and M.	2 sub.	21·0	750 / 1020	573
b.c.	**Borodino**	32,200	749½	99¼	..	66,000 Y. T.	Petrograd (New Admiralty)	1915	..	..	12 K.S.	..	..	..	..	..	12 *14-in.*, 21 *5·1-in.*, 4 *3-pr.*	..	27	..	..
b.	**Cesarevitch** *Pl. 62.*	12,912	388¾	76¼	26½	16,500 B.	La Seyne	1901	1903	..	9¾–4 K.S.	2½	6 K.S.	9 K.S.	10–11 K.S.	6¾ K.S.	4 *12-in.*, 12 *6-in.*, 20 *3-in.*, 6 *1·4-in.*, 4 M., 2 l.	2 sub.	19·6 *t*	900 / 1350	732
b.	**Ekaterina II**, B.S. *Pl. 59.*	22,500	551¼	89½	27¼	26,500 tur.	Nikolaieff (Private Co.)	1915	..	..	12 K.S.	3	8 K.S.	..	12 K.S.	5 K.S.	12 *12-in.*, 20 *5-in.*	4 sub.	21·0	3000	..
b.	**Evstafi** (Sviatoi), B.S. *Pl. 61.*	12,733	372¼	72¾	27	10,600 B.	Nikolaieff	1906	1911	..	9–3 K.S.	2½	6 K.S.	7–5 K.S.	10 K.S.	5 K.S.	4 *12-in.*, 4 *8-in.*, 12 *6-in.*, 14 *3-in.*, 10 smaller, 6 M., 2 l.	3 sub.	16	670 / 1400	731
b.	**Gangut** *Pl. 60.*	23,000	590½	87	27¼	42,000 Y. tur.	Petrograd (New Admiralty)	1911	1915	..	11–4 K.S.	3	8 K.S.	4 K.S.	11½ K.S.	5 K.S.	12 *12-in.*, 16 *4·7-in.*, 4 *3-pr.*, 8 M.	4 sub.	23	1200 / 3000	..
a.c.	**Gromoboi** shd. *Pl. 65.*	13,220	473	68½	26	15,500	Petrograd (Baltic)	1899	1900	..	6 H.S.	3	4¾ H.S.	6 H.S.	6 H.S.	4¾ H.S.	4 *8-in.*, 22 *6-in.*, 20 *3-in.*, 11 small Q.F. and M.	4 sub.	20·0	500 / 855	814
b.	**Ioann Zlatoust**, B.S. *Pl. 61.*	12,733	372¼	72¾	27	10,600 B.	Sebastopol	1906	1910	..	9–3 K.S.	2½	6 K.S.	7–5 K.S.	12–10 K.S.	5 K.S.	4 *12-in.*, 4 *8-in.*, 12 *6-in.*, 14 *3-in.*, 10 smaller, 6 M., 2 l.	5 sub.	16·0	670† / 1400	636
b.c.	**Ismail**	32,200	749½	99¼	..	66,000 Y. tur.	Petrograd (Baltic)	1915	..	..	12 K.S.	..	..	..	..	..	12 *14-in.*, 21 *5·1-in.*, 4 *3-pr.*	..	27	..	..
b.c.	**Kinburn**																				
b.	**Ivan Grosnyi**	22,500	551¼	89½	27¼	26,500 tur.	Nikolaieff (Russian Co.)	Bldg.	..	..	12 K.S.	3	8 K.S.	..	12 K.S.	5 K.S.	12 *12-in.*, 20 *5-in.*	4 sub.	21·0	3000	..

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a.g.b.	**Khrabry** . . .	1735	229	41¾	11	3000 Nic.	Petrograd (New Admiralty)	1895	1896	..	5	1½	..	3½	..	..	2 *8-in.*, 8 Q.F. . . .	2	15·0	100	120
b.	**Maria** (Imperatritsa), B.S. . *Pl.* 59.	22,500	551¼	89½	27¼	26,500 tur.	Nikolaieff (Ivanoff) .	1913	1915	..	12 K.S.	3	8 K.S.	..	12 K.S.	5 K.S.	12 *12-in.*, 20 *5-in.* .	4 sub.	21·0	3000	..
b.c.	**Navarin** . . .	32,200	749½	99¼	..	66,000 Y. tur.	Petrograd (New Admiralty)	1915	..	..	12 K.S.	..	..	..	..	..	12 *14-in.*, 21 *5·1-in.*, 4 *3-pr.*	..	27	..	..
b.	**Panteleimon**, B.S. (*ex* Potemkine) *Pl.* 63.	12,582	372¼	72¾	27	10,600 B.	Nikolaieff .	1900	1902	..	9-3 K.S.	2½	6 K.S.	7–5 K.S.	12–10 K.S.	5 K.S.	4 *12-in.*, 16 *6-in.*, 14 *3-in.*, 14 *1·4-in.*	5 sub.	17·0	670†	636
b.	**Pavel I (Imperator)** . *Pl.* 61.	17,400	429¾	79¾	28½	17,600 B.	Petrograd (Baltic)	1907	1911	1,170,000	11–6 K.S.	2½	5 K.S.	..	12 K.S.	7 K.S.	4 *12-in.*, 14 *8-in.*, 12 *4·7-in.*, 14 smaller.	3 sub.	18·0	1500	933
b.	**Petropavlovsk** .	23,000	590½	87	27¼	42,000 Y. tur.	Petrograd (Baltic)	1911	1915	2,800,000	11–4 K.S.	3	8 K.S.	4 K.S.	11½ K.S.	5 K.S.	12 *12-in.*, 16 *4·7-in.*, 4 *3-pr.*, 8 M.	4 sub.	23·0	1200	..
b.	**Poltava** . . *Pl.* 60.						Petrograd (New Admiralty)	1911	1915	2,800,000										3000	
a.c.	**Rossia** . . shd. *Pl.* 65.	12,195	480	68½	26	18,420 B.	Petrograd .	1896	1897	..	10–5 H.S.	2½	4 H.S.	6 H.S.	2 H.S.	2 H.S.	4 *8-in.*, 22 *6-in.*, 31 smaller Q.F. & M.	2	20·0	2500 §	725
b.	**Rostislav**, B.S. . *Pl.* 63.	8880	341	66½	24	8700	Nikolaieff .	1896	1900	..	15¾–8 H.S.	2-3	5 H.S.	5 H.S.	15¾ H.S.	6 H.S.	4 *10-in.*, 8 *6-in.*, 16 small & M.	2 sub.	16·0	§550 800	624
a.c.	**Rurik** . . *Pl.* 64.	15,170	490	75	26	19,700 B.	Barrow .	1906	1907	..	6–3 K.S.	1½	3 K.S.	3 K.S.	8 K.S.	7 K.S.	4 *10-in.*, 8 *8-in.*, 20 *4·7-in.*, 14 smaller.	2 sub.	21·0	1200 2000	800
b.	**Sevastopol** . . *Pl.* 60.	23,000	590½	87	27¼	42,000 Y. tur.	Petrograd (Baltic)	1911	1915	2,800,000	11–4 K.S.	2	8 K.S.	4 K.S.	11½ K.S.	5 K.S.	12 *12-in.*, 16 *4·7-in.*, 4 *3-pr.*, 8 M.	4 sub.	23·0	1200 3000	..
b.	**Sinope**, B.S. . .	10,180	331	69	26½	13,000 B.	Sebastopol .	1887	1890	900,000	16–11 *comp.*	3	14 *comp.*	12	14 *comp.*	..	6 *12-in.*, 7 *6-in.*, 8 Q.F., 6 M.	7	16·75	886	325
b.	**Slava** . . . *Pl.* 62.	13,516	367½	76	26	16,000 B.	Petrograd (Baltic)	1903	1905	..	9-4 K. S.	4	6 K.S.	9 K.S.	10 K.S.	6 K.S.	4 *12-in.*, 12 *6-in.*, 34 *3-in.*, and smaller	2 sub.	18·0	1250 2000	740

† And liquid fuel, 580 tons. § And liquid fuel.

The Pallada, armoured cruiser of 7900 tons, sunk by submarine in the Baltic, October 11, 1914, has been removed from the above list.

Also in the Black Sea are the old battleships Tri Sviatitelia (13,400 tons), 1893, and Georgi Pobiedonosetz (11,000 tons), 1892.

N.B.—The battleships Peresviet (12,674 tons, 4 10-in., 10 6-in. and many smaller guns) and Poltava (10,960 tons, 4 12-in., 12 6-in. and smaller guns), completed respectively in 1901 and 1898, which were captured by the Japanese in the war of 1904–5, have been retroceded to Russia by the Japanese Government.

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RUSSIA.—Cruising Ships, &c.

(B.S., Black Sea Fleet.)

Class.	NAME	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	ins.				knots.	tons.	
3rd cl. *cr.* .	**Almaz** . . .	3285	325	43½	17½	7500 B.	Petrograd . (Baltic)	1903	1904	..	2¾	5–3½ K.S.	3 *4·7-in.*, 8 *1·8-in.*, 2 *1·4-in.*, 2 M.	6	19·0	560	340
2nd cl. *cr.* .	**Askold** . . . *Pl.* 66.	5905	426½	49¼	20¾	20,420 T.S.	Kiel . . (Germania)	1900	1901	..	3	4	12 *6-in.*, 12 *3-in.*, 6 *1·8-in.*, 8 smaller Q.F. and M.	6 (2 sub.)	23·8 *t*	720/1100	500
„ „ .	**Aurora** . . .	6731	413¼	55¾	21	11,610 B.	Petrograd . (Galerny)	1900	1903	..	2½	..	8 *6-in.*, 20 *3-in.*, 8 smaller Q.F. and M.	3 (2 sub.)	20·0	900/1400	422
g.b. . .	**Bobr**	875	215¼	35¾	9	800	Petrograd . (New Admiralty)	1907	1908	..	..	..	2 *4·7-in.*, 4 *12-pr.*, 3 M. .	1	12·0	60	170
2nd cl. *cr.* .	**Bogatyr** . . . *Pl.* 66.	6675	416¾	54½	20¾	19,500 Nor.	Stettin . . (Vulcan)	1901	1902	..	2	5 N.S.	12 *6-in.*, 12 *3-in.*, 6 *1·8-in.*, 8 smaller Q.F. and M.	4 (2 sub.)	24·0 *t*	720/1100	580
„ „ .	**Boutakoff** (Admiral) .	7600	519¾	50	18	55,000 C.T	Putiloff . .	1915	..	..	1	3 side	16 *5·1-in.*, 5 *9-pr.*, 4 M. .	..	32	..	..
„ „ .	**Diana** (Submarine depôt)	6630	413¼	55¾	21	11,610 B.	Petrograd . (Galerny)	1899	1902	..	2½	..	10 *6-in.*, 20 *3-in.*, 18 smaller Q.F. and M.	3 (2 sub.)	20·0	900/1400	422
g.b. . .	**Gilyak** . . .	875	215¼	35¾	9	800	Petrograd . (New Admiralty)	1906	1908	..	..	..	2 *4·7-in.*, 4 *12-pr.*, 3 M. .	1	12·0	60	170
2nd cl. *cr.* .	**Grieg** (Admiral)	7600	519¾	50	18	55,000 C.T.	Reval . .	1915	..	..	1	3 side	16 *5·1-in.*, 5 *9-pr.*, 4 M. .	..	32	..	..
3rd cl. *cr.* .	**Kagul**, B.S. (ex-Otchakoff)	6675	439	54½	20½	19,500 Nor.	Sebastopol .	1902	1905	..	2¾	5–3½ K.S.	12 *6-in.*, 12 *3-in.*, 14 smaller	2 sub.	23·0	720/1100	570
to.g.b. .	**Kazarsky**, B.S. . .	400	190	24	8½	3500	Elbing . .	1890	1891	32,500	..	..	9 *1·8-in.* (Hotchkiss) .	2	23·0	90	60

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g.b. . .	**Koreiets** . . .	875	215¼	35¾	9	800	Petrograd . (New Admiralty)	1906	1908	..	..	..	2 *4·7-in.*, 4 *12-pr.*, 3 M. .	1	12·0	60	170
2nd cl. *cr* .	**Lazareff** (Admiral) B.S. . . .	7600	519¾	50	18	55,000 C.T.	Nikolaieff .	1915	..	..	1	3 (side)	16 *5·1-in.*, 5 *9-pr.*, 4 M. .	..	32	..	..
" " .	**Nakhimoff** (Admiral) B.S. . . .																
" " .	**Oleg** . . . . *Pl.* 66.	6675	439¾	54½	20½	19,500 Nor.	Petrograd . (New Admiralty)	1903	1904	..	2¾	5–3½	12 *6-in.*, 12 *3-in.*, 14 smaller, Q.F., & M.	2 (sub.)	23·0	600	340
" " .	**Pamyat Mercuria**, B.S. (ex-Kagul) .	6675	439	54½	20½	19,500	Nikolaieff .	1903	1907	..	2¾	5–3½ K.S.	12 *6-in.*, 12 *3-in.*, 14 smaller, Q.F., & M.	2 (sub.)	23·0	720	..
g.b. . .	***Sivoutch*** (1) . .	875	215¼	35¾	9	800	Petrograd . (New Admiralty)	1906	1908	..	..	..	2 *4·7-in.*, 4 *12-pr.*, 3 M. .	..	12·0	60	170
2nd cl. *cr.* .	**Spiridoff** (Admiral) .	7600	519¾	50	18	55,000 C.T.	Putiloff / Reval	1915	..	..	1	3 (side)	16 *5·1-in.*, 5 *9-pr.*, 4 M. .	..	32	..	..
" " .	**Svietlana**																

(1) Sivoutch, sunk in the fight in the Gulf of Riga, August, 1915.

Jemchug, 3130 tons, sunk by the Emden at Penang, Oct. 28, 1914, has been removed from the list. The gunboats Donetz and Kubanetz were sunk near Odessa, Oct. 30, 1914. (There are two other vessels of the same class, Teretz and Uraletz.) The Prut, mine-layer, was sunk by the Turks, Oct. 29, 1914.

Two light cruisers for the Black Sea were in the programme of 1914, to be built by the Russian Shipbuilding Co., Nikolaieff. The Turkish cruiser Medjidieh, 3432 tons, which was sunk by a mine off the Russian Black Sea Coast, April 3, 1915, has been raised and added to the Russian Fleet, under the name, it is believed, of Admiral Korniloff.

N.B.—The light cruiser **Varyag** (6,500 tons, 12 6-in., 12 12-pdr. guns, 23 knots) which was captured by the Japanese in the war of 1904–5, has been retroceded to Russia by the Japanese Government. See Plate 57.

Okean, *coal transport*, 12,000 tons, 18 knots, launched at Kiel, 1901. Torpedo transports and mining vessels Minin, General Admiral, Gerzog Edinburgski, Volga, Bakan, Amur, Ladoga, Narova, and Onega. Eight river gunboats (946 tons) built for the Amur, Grosa, Shkwal, Shtorm, Taifun, Smertsh, Uragan, Vichrj, Vjuga. Ten 200-ton gunboats for the same service. Gunboats for the Caspian, Kars and Ardagan, completed 1911. Rynda (1885), 3508 tons, training ship. Submarine salvage vessel Volchoff, 2400 tons, 1000 tons lift, Diesel engines, 10 knots.

VOLUNTEER FLEET.—Saratoff, 8556 reg. tons, Petersburg, 9252 reg. tons, Kherson, 10,225 reg. tons, Don, 8430 reg. tons, Kuban, 8480 reg. tons, Smolensk, 11,850 reg. tons, Terek, 7241 reg. tons, all of 18½ or greater speed. Vessels of the Black Sea Shipping Company and many others are available for transport purposes.

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SPAIN.—Armoured Ships.

Class	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	**Alfonso XIII.** *Pl. 67.*	15,460	435	78¾	25½	15,300 Y. P. tur.	Ferrol	1913	1915	..	9–4 K.S.	2–1	6–5 K.S.	6–3 K.S.	10 K.S.	6 K.	8 *12-in.*, 20 *4-in.*, 2 *3-pr.*, 2 l., 2 M.	3	19·5	800/1900	700
a.c.	**Cataluña**	6889	347¾	61	21¾	15,000	Cartagena	1900	1903	600,000	12–10	2	..	12	10½	..	2 *9·4-in.*, 8 *5·5-in.*, 8 *6-pr.*, 2 l.	5 sub.	19·5 *t*	1200	484
"	**Emperador Carlos V.** *Pl. 67.*	9089	380	67	25	18,500	Cadiz (Vea Murguia)	1895	1898	734,000	2	6½–2	2	..	10	2	2 *11-in.* (Hontoria), 8 *5·5-in.*, 4 *3·9-in.*, 2 *2·7-in.*, 4 *2·2-in.*, 6 M.	6	20·0	1200	535
b.	**España**	15,460	435	78¾	25½	15,300 Y. P. tur.	Ferrol	1912	1914	..	9–4 K.S.	2–1	6–5 K.S.	6–3 K.S.	10 K.S.	6 K.	8 *12-in.*, 20 *4-in.*, 2 *3-pr.*, 2 l., 2 M.	3	20·0 *t* 19·5	800/1900	700
b.	**Jaime I.*** *Pl. 67.*							1914	1915												
b.	**Pelayo**	9744	330	66	25	9000 Nic.	La Seyne	1887	1890 1897	..	17¾	4	..	..	19½	4 H.S.	2 *12·5-in.*, 2 *11-in.*, 9 *5·5-in.*, 6 smaller, 12 M.	7	16·0	800	600
a.c.	**Princesa de Asturias**	6889	347¾	61	21¾	15,000	Carraca	1896	1902	600,000	12–10	2	..	12	10½	..	2 *9·4-in.*, 10 *5·5-in.*, 8 *6-pr.*, 2 l.	5	18·0	1200	500

* Two others of the class are projected.

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SPAIN.—Cruising Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	ins.				knots.	tons.	
g.b.	**Bonifaz**	800	200	30	..	1100 Y	Cartagena	1912	1913	..	..	..	4 *3-in.*, 2 M.	..	13·0	..	..
to.g.b.	**Don Alvaro de Bazán**	810	233	26¾	22	2500	Ferrol	1897	1899	..	..	..	2 *4·7-in.* (Hontoria), 4 *1·6-in.*, 2 M.	4	19·0	..	110
„	**Doña María de Molina**	810	233	26¾	22	2500	Ferrol	1896	1898								
cr.	**Extremadura**	2030	290	36	14	7000 T	Cadiz	1900	1902	..	2	..	8 *4-in.* (Vickers), 4 *2·2-in.*, 2 *1·4-in.*, 1 l.	..	20·0	430	246
g.b.	**Lauria**	800	200	30	..	1100 Y	Cartagena	1912	1913	..	..	..	4 *3-in.*, 2 M.	..	13·0	..	..
„	**Laya**																
to.g.b.	**Marqués de la Victoria**	810	233	26¾	22	2500	Ferrol	1897	1900	..	..	..	2 *4·7-in.* (Hontoria), 4 *1·6-in.*, 2 M.	4	19·0	..	110
g.b.	**Recalde**	800	200	30	..	1100 Y	Cartagena	1911	1912	..	..	..	4 *3-in.*, 2 M.	..	13·0	..	..
cr.	**Reina Regente**	5287	337	529	19¾	6500 W.T.	Ferrol	1906	1908	..	..	3	10 *5·5-in.*, 12 *2·2-in.*, 2 l., 8 M.	3	20·0	1200	497
„	**Rio de la Plata** shd.	1773	246	35¼	15	7100 N.S.	Havre	1898	1899	..	..	1	2 *5·5-in.*, 4 *3·9-in.*, 4 *2·2-in.*, 6 M.	2	20·0	270	213
„	**N.**	5600	..	..	..	25,500 T.	Ferrol	Pro.	..	..	2 (1½ side)	..	9 *6-in.*, 4 *3-pr.*, 1 l., 4 M.	2 (sub.)	25·5	..	..

Hernán Cortés, Vasco Nuñez de Balboa, Marqués de Molins, Ponce de Léon, MacMahon, Perla, Nueva España and Temerario, gun-vessels.

The new programme provides for beginning a battleship and for three additional light cruisers of the 5600-ton class, six destroyers, 28 submarines, three gunboats and other vessels. Including provision of mines, &c., and necessary plant and supplies for the Ferrol and Cartagena dockyards, the cost will be £11,000,000.

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SWEDEN.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
c.d.s., t.	Aeran . . *Pl.* 68.	3612	287	49¼	16½	6500 Y.	Gothenburg	1901	1902	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·2-in.*, 6 *5·9-in.*, 10 *2·2-in.*, 2 *1·4-in.*, 2 M.	2 sub.	17·2 *t*	370	250
„	Dristigheten . *Pl.* 69.	3445	285	48½	16	5400 Y.	Gothenburg	1900	1901	..	8 K.S.	1⅞	..	..	8 N.S.	3¾ K.S.	2 *8·2-in.*, 6 *5·9-in.*, 10 *2·2-in.*, 2 M.	2 sub.	16·5	300	250
a.c.	Fylgia . .	4100	377¼	48¾	16	12,440 Y. *t*	Stockholm .	1905	1907	385,700	4 K.S.	2	..	..	5 K.S.	5 K.S.	8 *5·9-in.*, 14 *2·2-in.*, 3 *1·4-in.* .	2	22·5 *t*	350/900	321
c.d.s., t.	Göta . .	3238	258½	48	16¾	4750	Gothenburg	1890 1902	1891	..	11¾–8	2	..	..	7½ H.S.	5 H.S.	1 *8·2-in.*, 7 *5·9-in.*, 11 *2·2-in.*, 2 *1·4-in.*	3	16·0	240	150
„	Manligheten . *Pl.* 68.	3612	287	49¼	16½	7400 Y.	Malmö .	1904	1906	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·2-in.*, 6 *5·9-in.*, 10 *2 2-in.*, 2 *1·4-in.*, 2 M.	2 sub.	17·0	370	250
„	Njord . .	3445	278¼	48½	17½	5350	Gothenburg	1898	1899	..	9½ H.N.S.	1⅞	..	..	9⅞ H.N.S.	4 H.N.S.	2 *9·8-in.*, 6 *4·7-in.*, 10 *2·2-in.*, 4 M.	1	16·5	275	200
„	Oden . . .	3445	278¼	48½	17½	5330	Stockholm .	1896	1898	..	9½ H.N.S.	1⅞	..	..	9⅞ H.N.S.	4 H.N.S.	2 *9·8-in.*, 4 *4·7-in.*, 10 *2·2-in.*, 4 M.	1	16·5	275	200
„	Oscar II . . *Pl.* 68.	4203	313¾	49½	16¾	8500 Y.	Gothenburg	1905	1907	..	6 K.S.	2	6 K.S.	6 K.S.	7½ K.S.	5 K.S.	2 *8·2-in.*, 8 *5·9-in.*, 10 *2·2-in.*, 2 *1·4-in.*, 2 M.	2 sub.	18·0	350/500	326
„	Svea . .	3051	248¼	49¼	17	3640	Gothenburg	1886 1904	1887	..	11¾–8	2	..	..	7½ H.S.	5 H.S	1 *8·2-in.*, 7 *5·9-in.*, 11 *2·2-in.*, 2 *1·4-in.*	. 1	14·7 *t*	220	268
a.c.	Sverige . . *Pl.* 69.	7100	390½	61	21½	20,000 tur. Y.	Stockholm .	1914	..	666,000	8–6 K.S.	1½	4 K.S.	..	8 K.S.	5 K.S.	4 *11-in.*, 8 *6-in.*, 6 *12-pr.*, 4 *1-pr.*	2 sub.	22·0	350/800	450
c.d.s., t.	Tapperheten . *Pl.* 68.	3612	287¼	49¼	16½	6000 Y.	Malmö .	1901	1904	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·2-in.*, 6 *5·9-in.*, 10 *2·2-in.*, 2 *1·4-in.*, 2 M.	2 sub.	16·5	370	250
„	Thor . . .	3445	278¼	48½	17½	5350	Stockholm .	1898	1890	..	9½ H.N.S.	1⅞	..	..	9⅞ H.N.S.	3¾ H.N.S.	2 *9·8-in.*, 6 *4·7-in.*, 10 *2·2-in.*, 4 M.	1	16·5	275	200
„	Thule . .	3248	260¾	48	16¾	4740	Stockholm .	1892 1904	1894	..	11¾–8	1⅞	..	..	7½ H.S.	5 H.S.	1 *8·2-in.*, 7 *5·9-in.*, 11 *2·2-in.*, 2 *1·4-in.*	2	16·2 *t*	250	165
„	Wasa . . *Pl.* 68.	3612	287	49¼	16½	6000 Y.	Stockholm .	1901	1893	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·2-in.*, 6 *5·9-in.*, 10 *2·2-in.*, 2 *1·4-in.*, 2 M.	2 sub.	16·5	370	250

Gustav V. and Drottning-Victoria (Sverige class) laid down respectively at Malmö and Gothenburg, 1915.

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SWEDEN.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.										knots.	tons.	
to.g.b.	**Claes Horn**	787	222	27	10¼	3600	Stockholm	1899	1900	..	..	..	2 *4·7-in.*, 4 *2·2-in.*	1 sub.	20·0	120	110
„	**Claes Uggla**	787	232	27¼	8¾	4500 Y.	Stockholm	1900	1901	..	..	..	2 *4·7-in.*, 4 *2·2-in.*	1	20·5	120	110
to.g.b.	**Jacob Bagge**	787	222	27	10¼	3970	Malmö	1898	1899	..	..	..	2 *4·7-in.*, 4 *2·2-in.*	1 sub.	19·5	120	110
	Örnen					4100	Gothenburg	1896	1897						19·5		
„	**Psilander**	787	232	27¼	8¾	4500 Y.	Stockholm	1900	1901	..	..	..	2 *4·7-in.*, 4 *2·2-in.*	1 sub.	20·5 *t*	120	110

Four gunboats of 190 to 200 tons, and about 130 I.H.P. each, and carrying 1 5-in. B.L.R. and 2 M.

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TURKEY.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draugh	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
c.b.	**Assar-i-Tewfik**	4613	272½	52½	25	3560	La Seyne	1868	1870 1906	..	8	..	..	..	6	..	3 *5·9-in.*, 7 *4·7-in.*, 6 *6-pr.*	..	13·0	400	300
b.	***Kheyr-ed-Din Barbarossa**** (1)	9901	354¼	65	24¾	9000	Wilhelmshaven	1891	1894	450,000	15¾ *comp.*	2½	..	..	11¾ *comp.*	1½	6 *11-in.*, 8 *4·1-in.*, 8 *3·4-in.*, 4 M.	3	17·0	630/1000	..
b.	**Turgut Reis †**	9901	354¼	65	24¾	9000	Stettin (Vulcan)	1891	1893	450,000	15¾ *comp.*	2½	..	..	11¾ *comp.*	1½	6 *11-in.*, 8 *4·1-in.*, 8 *3·4-in.*, 4 M.	3	17·0	630/1000	..
b.c.	**Yavuz Selim** (*ex* Goeben) *Pl.* 70.	22,640	610¼	96	27	70,000 P. tur.	Hamburg (Blohm & Voss)	1911	1912	..	7½–4 K.S.	..	..	..	8 K.S.	5 K.S.	10 *11-in.*, 12 *5·9-in.*, 12 *3·4-in.*	4 (sub.)	28·6 *t*	1000/3100	1013

* Ex Kurfürst Friedrich Wilhelm. † Ex Weissenburg.

(1) Kheyr-ed-Din Barbarossa, sunk by British submarine at the entrance to the Sea of Marmora, August 9, 1915.

The Messoudieh, 9120 tons, which was torpedoed in the Dardanelles by B 11, December 13, 1914, has been removed from the list.

The battleships Osman I. (*ex* Rio de Janiero) and Reshadieh, then building respectively at Elswick and Barrow, were taken over for the British Navy on the outbreak of war, and are named Agincourt and Erin.

The Yavuz Selim and other Turkish ships have a proportion of German officers and ratings engaged in specialist duties. The German Admiral Souchon is in command.

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TURKEY—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
g.b.	**Aidin Reiss, Doruk Reiss, Burak Reiss, Hisiz Reiss,** and four others (1)	550	178½	18	8¼	1025	St. Nazaire La Seyne	1913 1914	1915 ..	..	..	..	2 *3·9-in.*, 2 *3-pr.*	..	14·0	..	..
to. cr.	***Berk-i-Satvet*** (2)	740	262½	27½	..	5100	Kiel (Germania)	1906	1907	..	..	..	2 *4-in.*, 6 *6-pr.*, 2 M., 2 l.	3	22	240	..
cr.	**Hamidieh** *Pl. 70.*	3800	340	47½	16	12,500 Nic.	Elswick	1903	1904	..	4–1½	..	2 *6-in.*, 8 *4·7-in.*, 6 *1·8-in.*, 6 M.	2	22·2 *t*	600	300
g.b.	**Malatia** and seven others (3).	210	155	19¾	6½	330	France	1913	1914	..	..	..	2 *3-pr.*, 2 M.	1	14·0	44	..
cr.	**Midillieh** (ex Breslau) * *Pl. 42.*	4500	446¼	44½	16¾	33,482 A.E.G. *t.*	Stettin (Vulcan)	1911	1912	..	2	(4–2½ side)	12 *4·1-in.*, 2 M.	2 (sub.)	27·5 *t*	1200	373
to. cr.	***Peik-i-Shevket*** (4)	740	262½	27½	..	5100	Kiel (Germania)	1906	1907	..	..	..	2 *4-in.*, 6 *6-pr.*, 2 M., 2 l.	3	22	240	..

Medjidieh, sunk by mine off Russian Black Sea coast, April 3, 1915, raised by the Russians and added to their Fleet. * Mi¹illieh, torpedoed but not sunk by British submarine in the Baltic, August 18, 1915. (1) Doruk Reiss, or one of the class, sunk by Russian torpedo-boat in Black Sea, Dec. 10, 1915. (2) Berk-i-Satvet, sunk by British submarine in the Dardanelles, Aug., 1915. (3) Malatia, or one of the class, sunk in the Black Sea, Dec. 10, 1915. (4) Peik-i-Shevket, sunk in the Dardanelles by E 14, April, 1915; also, in the Sea of Marmora, two transports and a gunboat, in May.

Marmaris (250 tons) sunk by British sloops in the Tigris, June, 1915. There are about 20 gunboats of various classes. Mine-layer Nusrat, 380 tons, 15 knots, built Germania Yard, Kiel, 1912.

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UNITED STATES.—Armoured Ships.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost. *	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	Alabama. *Pl. 77.*	11,565	368	72¼	26	11,207 *t*	Philadelphia	1898	1900	544,539	16½–4 H.S.	2¾–4	5¼ H.S.	12 H.S.	15 H.S.	6 H.S.	4 *13-in.*, 14 *6-in.*, 16 *6-pr.*, 2 *1-pr.*, 4 M., 2 l.	..	17·0 *t*	800 / 1275	592
b.	Arizona. *Pl. 71.*	31,400	600	97	28¾	31,500 *t* Y.	New York	1915	..	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.*, 22 *5-in.*, 10 small l. & M.	4 (sub.)	21 0	2914 Oil	1002
b.	Arkansas *Pl. 74.*	26,000	554	93¼	28½	28,533 P. tur.	Camden, N.J.	1911	1912	964,000	11–5 K.S.	3	..	8–6 K.S.	11 K.S	6½	12 *12-in.*, 21 *5-in.*, 4 *3-pr.*, 2 M., 2 l.	2 (sub.)	21·0 *t*	1650 / 2500	1115
a. c.	Brooklyn.	9215	400½	62	26¼	18,425 *t*	Philadelphia	1895	1896	613,583	3 H.S.	6–3	4 H.S.	..	8 H.S.	5½ H.S.	8 *8-in.*, 12 *5-in.*, 12 *6-pr.*, 4 *1-pr.*, 4 M., 2 l.	..	22·2 *t*	900 / 1622	718
b.	Charleston	9700	424	66	25½	27,500 B.&W.	Newport News	1904	1906	563,030	4 H.S.	3	4 H.S.	..	4 H.S.	..	14 *6-in.*, 18 *3-in.*, 12 *3-pr.*, 12 *1-pr.*, 10 M., 2 l.	..	22·0	650 / 1500	664
a. c.	Colorado. *Pl. 78.*	13,680	502	69½	24½	26,837 Nic.	Philadelphia	1903	1905	756,000	6–3½ K.S.	4	5 K.S.	4 K.S.	6 K.S.	5 K.S.	4 *8-in.*, 14 *6-in.*, 18 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	2 (sub.)	22·2 *t*	900 / 2000	829
b.	Connecticut *Pl. 76.*	16,000	450	76¾	26¾	20,525 B. & W.	Camden, N.J.	1904	1906	819,300	11½ K.S.	3	8 K.S.	7 K.S.	10 K.S.	7 K.S.	4 *12-in.*, 8 *8-in.*, 12 *7-in.*, 18 *3-in.*, 4 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 (sub.)	18·8 *t*	900 / 2200	803
b.	Delaware *Pl. 75.*	20,000	510	85¼	27	29,025	Newport News	1909	1910	817,300	11 K.S.	..	10–8 K.S.	..	11 K.S.	5 K.S.	10 *12-in.*, 14 *5-in.*, 2 *3-pr.*, 2 l., 12 M.	2 (sub.)	21·5 *t*	1000 / 2500	927
b.	Florida *Pl. 75.*	21,825	510	88¼	27	27,036 tur.	New York	1910	1911	1,280,000	11	..	10	..	11	5	10 *12-in.*, 16 *5-in.*, 4 *3-pr.*, 4 M., 2 l.	2 (sub.)	21·0	1000 / 2300	1014
Superposed turrets.	Georgia *Pl. 76.*	14,948	435	76¼	23¾ †	25,088 *t* Nic.	Bath, Me.	1904	1906	737,700	11–4 K.S.	3	6 K.S.	6 K.S.	11 K.S.	6 K.S.	4 *12-in.*, 8 *8-in.*, 12 *6-in.*, 12 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 (sub.)	19·2 *t*	900 / 1704	812
b.	Idaho *Pl. 71.*	32,000	600	97	28¾	31,500 *t* Y.	Camden, N.J.	Bldg.	..	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (50 cal.), 22 *5-in.*, 10 small l. & M.	4 (sub.)	21·0	2914 Oil	..
b.	Illinois *Pl. 77.*	11,565	368	72¼	26	12,757	Newport News	1898	1901	533,237	16½–4 H.S.	2¾–4	5¼ H.S.	12 H.S.	15 H.S.	6 H.S.	4 *13-in.*, 14 *6-in.*, 16 *6-pr.*, 6 *1-pr.*, 4 M., 2 l.	1 (sub.)	17·45 *t*	800 / 1275	686
,,	Iowa	11,340	360	72¼	26¾	11,933	Philadelphia	1896	1897	618,514	14 H.S.	2¾	5 H.S.	12 H.S.	15 H.S.	8–6 H.S.	4 *12-in.*, 8 *8-in.*, 10 *4-in.*, 4 *6-pr.*, 6 M., 2 l.	..	17·1 *t*	625 / 1795	520

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b.	**Kansas** *Pl. 76.*	16,000	450	77	26¾	19,545 B. & W.	Camden, N.J.	1905	1907	855,850	8–11 K.S.	3–4½	8 K.S.	7 K.S.	10 K.S.	7 K.S.	4 *12-in.*, 8 *8-in.*, 12 *7-in.*, 18 *3-in.*, 4 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 (sub.)	18·1 *t*	900/2200	854
Superposed turrets.	**Kearsarge** / **Kentucky**	11,520	368	72¼	25¾	{11,788 / 12,179}	Newport News	1898	1899	462,345 each	16½–4 H.S.	2¾–5	5½ H.S.	..	15 H.S.	9 H.S.	4 *13-in.*, 4 *8-in.*, 18 *5-in.*, 18 small L. and M.	{1 / ..}	{16·8 / 16·9} *t*	410/1591	{690 / 686}
b.	**Louisiana** *Pl. 76.*	16,000	450	76¾	26¾	20,748 B. & W.	Newport News.	1904	1906	819,300	11–8 K.S.	3	8 K.S.	7 K.S.	10 K.S.	7 K.S.	4 *12-in.*, 8 *8-in.*, 12 *7-in.*, 18 *3-in.*, 4 *3-pr.*, 8 *1-pr.*, 8 M., 2 L.	4	18·8 *t*	900/2200	803
"	**Maine** *Pl. 77.*	12,500	388	72¼	25½	15,693 Nic.	Philadelphia	1901	1902	592,828	11–4 K.S.	2¾–4	6 K.S.	10 K.S.	12 K.S.	6 K.S.	4 *12-in.*, 16 *6-in.*, 6 *3-in.*, 8 *3-pr.*, 6 *1-pr.*, 2 M., 2 l.	2 sub.	18·0 *t*	1000/1800	551
a.c.	**Maryland** *Pl. 78.*	13,680	502	69½	24½	28,059 B. & W.	Newport News.	1903	1905	756,400	6–3½ K.S.	4	5 K.S.	4 K.S.	6 K.S.	5 K.S.	4 *8-in.*, 14 *6-in.*, 18 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	2 sub.	22·4 *t*	900/1850	829
b.	**Michigan** *Pl. 75.*	16,000	450	80¼	24½	16,310 B. & W.	Camden, N.J.	1908	1909	700,000	11–9	3	8	10	10–8	8	8 *12-in.*, 22 *3-in.*, 2 *3-pr.*, 12 M., 2 l.	2 sub.	18·8 *t*	900/2200	669
a.c.	**Milwaukee**	9700	424	66	25½	24,166 W.T.	S. Francisco.	1904	1906	580,500	4 H.N.S.	3	4 H.N.S.	..	4 H.N.S.	..	14 *6-in.*, 18 *14-pr.*, 12 *3-pr.*, 12 *1-pr.*, 10 M., 2 l.	2 sub.	22·2 *t*	650/1500	664
b.	**Minnesota** *Pl. 76.*	16,000	450	77	26¾	20,235 B. & W.	Newport News	1905	1907	844,500	8–11 K.S.	3–4½	8 K.S.	7 K.S.	10 K.S.	7 K.S.	4 *12-in.*, 8 *8-in.*, 12 *7-in.*, 18 *3-in.*, 4 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 sub.	18·8 *t*	900/2200	881
"	**Mississippi** *Pl. 71.*	32,000	600	97	28¾	31,500 *t* Y.	Newport News	Bldg.	..	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (50 cal.), 22 *5-in.*, 10 small l. & M.	4 sub.	21·0	2914 Oil	..
"	**Missouri** *Pl. 77.*	12,500	388	72¼	25½	15,845 T.	Newport News	1901	1903	592,828	12–4 K.S.	2¾–4	6 K.S.	10 K.S.	12 K.S.	6 K.S.	4 *12-in.*, 16 *6-in.*, 6 *3-in.*, 8 *3-pr.*, 4 *1-pr.*, 2 M., 2 l.	2 sub.	18·1 *t*	1000/1836	551
a.c.	**Montana** *Pl. 78.*	14,500	502	72¾	25	27,938 B & W	Newport News	1906	1908	970,630‡	5–3 K.S.	3	5 K.S.	6 K.S.	9 K.S.	5 K.S.	4 *10-in.*, 16 *6-in.*, 22 *3-in.*, 12 *3-pr.*, 4 *1-pr.*, 4 M., 2 l.	4 sub.	22·2 *t*	900/2000	845
Superposed turrets.	**Nebraska** *Pl. 76.*	14,948	435	76¼	23¾ †	21,283 B. & W.	Seattle.	1904	1907	767,210	11–4 K.S.	3	6 K.S.	6 K.S.	11 K.S.	6 K.S.	4 *12-in.*, 8 *8-in.*, 12 *6-in.*, 12 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 sub.	19·1 *t*	900/1900	812
b.	**Nevada** *Pl. 72.*	27,500	575	95	28½	35,000 Cur. tur.	Quincy, Mass.	1914	1915	2,200,000	13½–8 K.S	1½–3	13½–8 K.S.	13½ K.S.	18–16 K.S.	5 K.S.	10 *14-in.*, 21 *5-in.*, 10 small l. & M.	4 sub.	20·5	1300/2000	..
b.	**New Hampshire** *Pl. 76.*	16,000	450	77	26¾	19,100 B. & W.	Camden, N.J.	1906	1908	1,600,000 (Total)	9–4 K.S.	3	7 K.S.	7 K.S.	12 K.S.	7 K.S.	4 *12-in.*, 8 *8-in.*, 12 *7-in.*, 12 *3-in.*, 12 *3-pr.*, 4 *1-pr.*, 4 M., 2 l.	4 sub.	18·2 *t*	900/2350	916
Superposed turrets.	**New Jersey** *Pl. 76.*	14,948	435	76¼	23¾ †	23,089 B. & W.	Quincy, Mass.	1904	1906	699,680	11–4 K.S.	3	6 K.S.	6 K.S.	11 K.S.	6 K.S.	4 *12-in.*, 8 *8-in.*, 12 *6-in.*, 12 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 sub.	19·4 *t*	900/1900	812

* The sums given in this column are exclusive of the cost of armour and armament according to the system of making appropriations in the estimates. † Mean draught.

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UNITED STATES.—Armoured Ships—*continued.*

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost. *	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Secondary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Normal Coal Supply.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	**New Mexico** (originally California) *Pl.* 71.	32,000	600	97	28¾	31,500 *t* Y.	New York	Bldg.	..	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (50 cal.), 22 *5-in.*, 10 small l. & M.	4 (sub.)	21·0	2914 Oil	..
,,	**New York** *Pl.* 73.	27,000	565	95¼	28½ †	35,000	New York	1912	1914	..	12–4 K.S.	3	9 K.S.	10 K.S.	14–8 K.S.	6 K.S.	10 *14-in.*, 21 *5-in.*, 10 small l. & M.	4 sub.	21·0	2200 / 2850	1074
a.c.	**North Carolina** *Pl.* 78.	14,500	502	72¾	25	29,785 B. & W.	Newport News	1906	1908	970,630‡	5–3 K.S.	3	5 K.S.	9 K.S.	9 K.S.	5 K.S.	4 *10-in.*, 16 *6-in.*, 22 *3-in.*, 12 *3-pr.*, 4 *1-pr.*, 4 M., 2 l.	4 sub.	22·48 *t*	900 / 2000	845
b.	**North Dakota** *Pl.* 75.	20,000	510	85	27	31,826 Cur. tur.	Quincy, Mass.	1908	1910	899,500	11 K.S.	..	10–8 K.S.	..	11 K.S.	5 K.S.	10 *12-in.*, 14 *5-in.*, 2 *3-pr.*, 2 l., 12 M.	2 sub.	21·6 *t*	1000 / 2500	960
b.	**Ohio** *Pl.* 77.	12,500	388	72¼	25½	16,220 T.	S. Francisco.	1901	1904	595,705	11·4 K.S.	3–4	6 K.S.	10 K.S.	12 K.S.	6 K.S.	4 *12-in.*, 16 *6-in.*, 6 *3-in.*, 8 *3-pr.*, 6 *1-pr.*, 2 M., 2 l.	2 sub.	17·8 *t*	1000 / 2144	521
b.	**Oklahoma** *Pl.* 72.	27,500	575	95	28½	35,000	New York	1914	1915	2,200,000	13½–8 K.S.	1½–3	13½–8 K.S.	13½ K.S.	18–16 K.S.	5 K.S.	10 *14-in.*, 21 *5-in.*, 10 small l. & M.	4 sub.	20·5	1300 / 2000	..
b.	**Pennsylvania** *Pl.* 71.	31,400	600	97	28¾	31,500 *t* Y.	Newport News	1915	..	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.*, 22 *5-in.*, 10 small l. & M.	4 sub.	21·0	2914 Oil	1002
a.c.	**Pittsburg** *Pl.* 78.	13,680	502	69½	24½	28,600 Nic.	Philadelphia	1903	1905	799,340	6–3½ K.S.	4	5 K.S.	4 K.S.	6 K.S.	5 K.S.	4 *8-in.*, 14 *6-in.*, 18 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	2 sub.	22·4 *t*	900 / 2000	829
Superposed	**Rhode Island** *Pl* 76.	14,948	435	76¼	23¾ †	20,310 B. & W.	Quincy, Mass.	1904	1906	699,680	11–4 K.S.	3	6 K.S.	6 K.S.	11 K.S.	6 K.S.	4 *12-in.*, 8 *8-in.*, 12 *6-in.*, 12 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 sub.	19·0 *t*	900 / 1900	812
a. c.	**San Diego** (*ex* California) *Pl.* 78.	13,680	502	69½	24½	29,381 *t* B. & W.	S. Francisco.	1904	1907	756,000	6–3½ K.S.	4	5 K.S.	4 K.S.	6 K.S.	5 K.S.	4 *8-in.*, 14 *6-in.*, 18 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	2 (sub.)	22·2 *t*	900 / 2000	829
a.c.	**Saratoga** (*ex* New York)	8200	380½	64¾	27½	17,075	Philadelphia	1891	1893 1909	613,377	4 H.S.	2½	.. K.S.	..	6½ H.S.	5–4 H.S.	4 *8-in.*, 10 *5-in.*, 8 *12-pr.*, 4 *3-pr.*, 4 M.	..	21·0 *t*	750 / 1334	498
a.c.	**St. Louis**	9700	424	66	25½	27,264 B. & W.	Philadelphia (Cramp)	1905	1906	563,030	4 K.S.	3	4–3	..	4 K.S.	..	14 *6-in.*, 18 *14-pr.*, 12 *3-pr.*, 12 *1-pr.*, 10 M., 2 l.	..	22·3 *t*	650 / 1500	664
b.	**South Carolina** *Pl.* 75.	16,000	450	80¼	24½	18,357 B. & W.	Philadelphia (Cramp)	1908	1909	700,000	11–9	3	8	10	10–8	8	8 *12-in.*, 22 *3-in.*, 2 *3-pr.*, 12 M., 2 l.	2 sub.	18·9 *t*	900 / 2200	669

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a.c.	**South Dakota** *Pl.* 78.	13,680	502	69½	24½	28,598 B. & W.	S. Francisco.	1904	1907	770,570	6–3½ K.S.	4	5 K.S.	4 K.S.	6 K.S.	5 K.S.	4 *8-in.*, 14 *6-in.*, 18 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	2 sub.	22·0 *t*	900 2000	829
a.c.	**Tennessee** *Pl.* 78.	14,500	502	72¾	25	26,963 B. & W.	Philadelphia	1904	1906	970,630‡	5–3 K.S.	3	5 K.S.	6 K.S.	9 K.S.	5 K.S.	4 *10-in.*, 16 *6-in.*, 22 *3-in.*, 12 *3-pr.*, 4 *1-pr.*, 8 M., 2 l.	4 sub.	22·1 *t*	900 2000	858
b.	**Texas** *Pl.* 73.	27,000	565	95¼	28½	28,100 *t*	Newport News	1912	1914	1,166,000	12–4 K.S.	3	9 K.S.	10 K.S.	14–8 K.S.	6 K.S.	10 *14-in.*, 20 *5-in.*, 10 small	4 sub.	21·1 *t*	2200 2850	1074
b.	**Utah** *Pl.* 75.	21,825	510	88¼	28½	28,477 *t.*, P. tur.	Camden, N.J.	1909	1911	813,500	11	..	10	..	11	5	10 *12-in.*, 16 *5-in.*, 4 *3-pr.*, 4 M., 2 l.	2 sub.	21·6 *t*	1000 2300	1014
t.	**Vermont** *Pl.* 76.	16,000	450	77	26¾	17,982 B. & W.	Quincy, Mass.	1905	1907	858,730	8–11 K.S.	3–4½	8 K.S.	7 K.S.	10 K.S.	7 K.S.	4 *12-in.*, 8 *8-in.*, 12 *7-in.*, 20 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 sub.	18·33 *t*	900 2200	854
Superposed	**Virginia** *Pl.* 76.	14,948	435	76¼	23¾ †	22,841 Nic.	Newport News	1904	1906	737,700	11–8 K.S.	3	6 K.S.	6 K.S.	11 K.S.	6 K.S.	4 *12-in.*, 8 *8-in.*, 12 *6-in.*, 12 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	4 sub.	19·0 *t*	900 1900	812
a.c.	**Washington** *Pl.* 78.	14,500	502	72¾	27	27,152 B. & W.	Camden, N.J.	1905	1906	970,630‡	5–3 K.S.	3	5 K.S.	6 K.S.	9 K.S.	5 K.S.	4 *10-in.*, 16 *6-in.*, 22 *3-in.*, 12 *3-pr.*, 4 *1-pr.*, 8 M., 2 l.	4 sub.	22·3 *t*	900 2000	858
,,	**West Virginia** *Pl.* 78.	13,680	502	69½	24½	31,437 B. & W.	Newport News	1903	1905	798,310	6–3½ K.S.	4	5 K.S.	12 H.S.	6 K.S.	5 K.S.	4 *8-in.*, 14 *6-in.*, 18 *3-in.*, 12 *3-pr.*, 8 *1-pr.*, 8 M., 2 l.	2 sub.	22·1 *t*	900 2000	829
t.	**Wisconsin** *Pl.* 77.	11,653	368	72¼	26	12,452	S. Francisco.	1898	1901	549,666	16½–4 H.S.	3–4	5¼ H.S.	..	15 H.S.	6 H.S.	4 *13-in.*, 14 *6-in.*, 16 *6-pr.*, 6 *1-pr.*, 4 M., 2 l.	1	17·2 *t*	800 1310	583
b.	**Wyoming** *Pl.* 74.	26,000	554	93¼	28½	31,437 P. tur.	Philadelphia	1911	1912	963,800	11–9 K.S.	..	..	8–6 K.S.	11 K.S.	8	12 *12-in.*, 21 *5-in.*, 4 *3-pr.*, 2 M., 2 l.	2 sub.	21·2 *t*	1650 2500	1115
b.	**No. 43**§	36,000	..	..	..	..	New York	Pro.	..	1,383,285	..	..	..	..	..	..	*16-in.* guns (?)	..	..	..	..
b.	**No. 44**						Marc Island														

* See note on page 261. † Mean draught. ‡ Including armour, but not armament. § New Mexico class, some particulars uncertain. See Chap. VI.

Also the monitors Puritan, 6060 tons, Amphitrite, Miantonomoh, Monadnock, and Terror, 3990 tons, Tonopah (*ex* Nevada), 3714 tons, Tallahassee (*ex* Florida) and Ozark (*ex* Arkansas), 3235 tons, Cheyenne (*ex* Wyoming), 3218 tons, Monterey, 4084 tons, and the second-class battleship Texas, 6315 tons.

The battleships Idaho and Mississippi, 13,000 tons (4 *12-in.*, 8 8-*in.* guns), completed in 1908, were sold to Greece, and the proceeds of the sale were applied to the shipbuilding programme of 1914–15 for the three ships of the New Mexico class, the names of Idaho and Mississippi being retained for the other two. Two battleships are included in the programme of 1916–17.

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UNITED STATES.—Cruising Ships, &c.

Class.	NAME.	Displacement.	Length.	Beam.	Draught.	Indicated Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost. *	Armour. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Normal Coal Supply.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
3rd cl. *cr.*	**Albany** . shd.	3487	345	43¾	20	7500	Elswick .	1899	1900	247,611	3	3–1¼ shields	10 *5-in.*, 10 *3-pr.*, 12 *1-pr.*, 2 M., 1 l.	..	20·5 *t*	512 / 747	356
scout .	**Birmingham** .	3750	420	46¾	17	15,670 Express	Quincy, Mass.	1907	1908	301,000	2–1½	..	2 *5-in.*, 6 *3-in.* . . .	2 sub.	24·3 *t*	1250	356
3rd cl. *cr.*	**Chattanooga** shd..	3200	292	44	16¾	5303 B.&W.	Elizabeth Port	1903	1904	212,325	2	..	10 *5-in.*, 8 *6-pr.*, 2 *1-pr.*, 4 M., 1 l.	..	16·65 *t*	470 / 700	302
scout .	**Chester** . .	3750	420	46¾	17	16,000 Nor. turb.	Bath, Me. .	1907	1908	337,000	2–1½	..	2 *5-in.*, 6 *3-in.* . . .	2 sub.	26·5 *t*	1250	356
,, ,,	**Cincinnati** . .	3213	300	42	20¼	8,490 B.&W.	Brooklyn .	1892	1894	226,055	2½	4	11 *5-in.*, 8 *6-pr.*, 2 *1-pr.*, 2 M.	..	19·0	350 / 468	314
3rd cl. *cr.*	**Cleveland** . shd..	3200	292	44	16¾	4640 B.&W.	Bath, Me. .	1901	1903	212,325	2	..	10 *5-in.*, 8 *6-pr.*, 2 *1-pr.*, 4 M., 1 l.	..	16·4 *t*	470 / 700	302
2nd cl. *cr.*	**Columbia** . .	7350	412	58¼	25½	18,509	Philadelphia	1892	1894	559,950	4–2½	4 shield	1 *8-in.*, 2 *6-in.*, 8 *4-in.*, 12 *6-pr.*, 2 *1-pr.*, 2 M., 1 l.	..	22·8 *t*	750 / 1670	477
3rd cl. *cr.* ,,	**Denver** . **Des Moines** } shd.	3200	292	44	16¾	4135 B. & W.	Philadelphia Quincy, Mass.	1902	1904	212,325	2	..	10 *5-in.*, 8 *6-pr.*, 2 *1-pr.*, 4 M., 1 l.	..	16·75	470 / 700	303
g.v.	**Dubuque** . .	1085	174	35	13	1193 B. & W.	Morris Heights, N.Y.	1904	1905	..	..	..	6 *4-in.*, 4 *6-pr.*, 2 *1-pr.*, 2 M.	..	12·9	200	162
3rd cl. *cr.*	**Galveston** . shd.	3200	292	44	16¾	5073 B. & W.	Richmond, Va.	1903	1904	212,325	2	..	10 *5-in.*, 8 *6-pr.*, 2 *1-pr.*, 4 M., 1 l.	..	16·4	470 / 700	302

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		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
2nd cl. *cr.*	**Minneapolis** .	7350	412	58¼	25½	20,862	Philadelphia	1893	1894	552,754	4–2½	4 shield	1 *8-in.*, 2 *6-in.*, 8 *4-in.*, 12 *6-pr.*, 2 *1-pr.*, 2 M., 1 l.	..	23·0 *t*	750 1200	477
3rd cl. *cr.*	**New Orleans** shd.	3487	346	43¾	19¾	7500	Elswick .	1896	1898	293,684	..	3–1¼ shields	10 *5-in.*, 10 *3-pr.*, 2 *1-pr.*, 2 M., 1 l.	..	20·0	512 767	366
g.v.	**Paducah** . .	1085	174	35	13	1000 B.&W.	Morris Heights, N.Y.	1904	1905	..	..	..	6 *4-in.*, 4 *6-pr.*, 2 *1-pr.*, 2 M.	..	12·0	200	162
g.v.	**Sacramento**. .	1500	226½	40¾	12½	950	Philadelphia	1913	1914	..	..	..	3 *4-in.*, 2 *3-pr.*, 2 M. . .	..	15	400	156
scout	**Salem** . . .	3750	420	46¾	18¼	22,242 W.T. turb.	Quincy, Mass.	1907	1908	301,000	2–1½	..	2 *5-in.*, 6 *3-in.* . . .	2 sub.	25·9 *t*	1250	356
3rd cl. *cr.*	**Tacoma** . shd.	3200	292	44	16¾	5288 B.&W.	S. Francisco.	1903	1904	212,325	..	2 shields	10 *5-in.*, 8 *6-pr.*, 2 *1-pr.*, 4 M., 1 l.	..	16·6 *t*	470 700	302

* Prices exclusive of armament.

Third class cruisers Baltimore, Concord, Yorktown, Boston, Raleigh, and San Francisco, the last named converted into a mine-layer. Gun vessels Helena, Marietta, Nashville, Princeton, Vicksburg, Wheeling, and Wilmington, 1000 to 1392 tons, launched 1895–97. Fleet colliers Prometheus, Ontario and Vestal (12,500 tons); Cyclops, Jason, Jupiter, Neptune, Nereus, Orion and Proteus, 1935 tons. Two large oil-transports, Kanawha and Maumee, are being built, and the Ulysses and Achilles, colliers, for the Panama Canal. Gunboats, Monocacy and Palos, completed 1914. Torpedo depôt Castine, 1177 tons. Melville, mother-ship for destroyers, launched March, 1915, Camden, N.J., 7300 tons, 8 5-in. guns, 15 knots, complement 356.

Training ships, Olympia, 5870 tons; Chicago, 4500 tons; Marblehead, 2089 tons. Torpedo experimental vessel, Montgomery, 2089 tons

The ocean liners St. Louis and St. Paul, 11,629 tons, New York and Philadelphia, 10,802 tons, 20 knots (International Navigation Co.), and the Korea and Siberia, 11,200 tons, 18 knots (Pacific Mail Steamship Co.) are enrolled auxiliary cruisers. Niagara, submarine tender.

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SHIPS BELONGING TO POWERS WHOSE NAVIES ARE OF LESSER IMPORTANCE.

Bulgaria.—Eleven steamers of small size, of which one was used as the Royal yacht. Two armoured gunboats for the Danube built at Leghorn. The Nadiezda, despatch vessel (715 tons), launched Bordeaux, 1898; 18·85 knots; 2 3·9-in., 3 1·8-in. Q.F., and 2 torpedo tubes. Three 100-ton 26-knot torpedo-boats launched 1907; three smaller. Four or more German submarines were sent overland to Varna in October, 1915.

Colombia.—Cruiser Almirante Lezo (*ex* El Baschir), 1200 tons; 2500 H.P.; 18 knots; built 1892, bought from Morocco. Gunboats, Chercuito and Bogota. River gunboats, General Nerino and Esperanza, 400 tons. Three Yarrow motor gunboats, 1913.

Cuba.—Cruiser Cuba, 2055 tons, 3500 H.P., 18 knots, and gunboat Patria, 1200 tons, 1500 H.P., 16 knots.

Ecuador.—The torpedo cruiser Almirante Simpson, 812 tons, bought from Chili. One torpedo-boat and two transport vessels.

Egypt.—The Nile stern-wheel gunboats Sultan, Sheikh and Melik, 140 tons, Fateh and Naseh, 128 tons; also the Abu Klea, Hafir, Metemmeh, and Tamai. Abdel, Monaym and Abbas, coast-guard vessels, submarined November 5, 1915, Eastern Mediterranean.

Hayti.—Steel gunboat—Capois la Mort, 260 tons, 1 3·9-in., and 4 1-pr. Q.F. Iron corvette—Dessalines, 1200 tons, armed with 1 3·9-in. Q.F., 2 3·9-in. B.L., 2 l., 2 M. Two sloops—St. Michael and 1804. Gun-vessel, 22nd of December. Umbria, cruiser, of 2245 tons.

Mexico.—Two gun-vessels, Tampico and Vera Cruz, launched Elizabethport, New Jersey, 1902; displacement, 980 tons; armament, 4 4-in. Q.F., 6 6-pr.; bow torpedo tube; 2400 I.H.P.; speed, 16 knots; fitted to serve as transport for 200 troops. Gun vessels Bravo and Morero, 1200 tons; 2600 I.H.P.; Blechynden boilers; 17 knots; launched Leghorn, 1904. The Zaragoza, 1200 tons, 1300 H.P., 15 knots speed, and armed with 4 4·7-in. guns and 4 small quick-firing guns. Gun-vessel, Democrata, 450 tons; 11 knots; 2 6½-in. muzzle-loaders and 2 small guns. Torpedo transport General Guerrero, 1880 tons; 1200 I.H.P.; completed at Barrow 1908. Two small gunboats of 10 knots speed. Five torpedo-boats. Two cruisers, 2400 tons, to be built.

Peru.—Almirante Grau and Coronel Bolognesi, cruisers, 3200 tons, 370 ft. long, 40 ft. 6 in. beam, 14 ft. 3 in. draught; Barrow,

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1906; 2 6-in., 8 14-pdr., 8 1¼-pdr.; 2 submerged torpedo tubes; 1½-in. armoured deck, 3-in. conning tower; 14,000 I.H.P.; 24 knots. Eclaireur, cruiser, 1769 tons, launched 1877, partially reconstructed; bought from France. Armoured cruiser Dupuy de Lôme, purchased for £140,000, and renamed Elias Aguirre. Lima, 1700 tons, 1800 I.H.P., 16 knots; armament, 2 6-in. guns. Destroyer, Rodriguez, 500 tons, and submarines, Ferré and Palacios, built Le Creusot, 1912–13. Screw steamer, Santa Rosa, about 400 tons.

Roumania.—Elizabeta, protected cruiser (deck 3 in.), built in 1887 at Elswick; 230 ft. long, 32 ft. 10 in. beam; 1320 tons; 3000 I.H.P.; armament, 4 5·9-in. B.L.R., 4 Q.F., 2 M., 4 torpedo tubes. Composite gunboat Mircea, 360 tons; Grivitza, 110 tons. Two gunboats, 45 tons, and 3 first-class torpedo-boats. For the Danube, the gunboats Fulgurul, Oltul, Siretul, Bistritza, 90 to 100 tons, Alexandru cel Bun, 104 tons, 5 sloops, 2 small torpedo-boats. The shipbuilding programme includes 8 monitors of 600 tons, 12 torpedo-boats and 8 vedettes for the Danube, and 6 coast-defence vessels of 3500 tons, 4 destroyers, and 12 torpedo-boats for the Black Sea. Four destroyers completed at Naples (1350–1450 tons). Four monitors (3 4·7-in. guns) Lascar Catorgin, Don Bratianu, Michall Kogainiscenu, and Alex Lahovari, and 3 torpedo-boats completed.

Santo Domingo.—The Independencia, built in England 1894, 170 ft. long, 25 ft. broad, displacement 322 tons, and armed with seven Hotchkiss quick-firing guns. Restauracion, steel gun-vessel, 1000 tons, launched at Glasgow in 1896. The 14-knot cruiser Presidente has been reconstructed, and carries seven guns.

Sarawak.—Two gunboats, of 175 and 118 tons respectively.

Siam.—Deck-protected cruiser, Maha Chakrkri, 290 ft. long, 39 ft. 4 in. beam, of 2500 tons displacement and 17 to 18 knots speed; armament, four 4·7-in. and ten 6-pdr. quick-firing guns. Makut-Rajakamar, 650 tons. The gunboats Bali, Muratha, and Sugrib, 600 tons, one 4·7-in. Q.F., five 2·2 in., four 1·4 in., 12 knots, launched 1898 and 1901. Several other gunboats. Three modern despatch vessels 100 to 250 tons. Three 380-ton, 27-knot destroyers, built at Kobe.

Uruguay.—Gunboats: General Artigas, 274 tons, 12½ knots speed, 2 4·7-in. (Krupp), 2 M.; and General Saurez, 300 tons. The cruiser Uruguay, built at the Vulcan Yard, Stettin; 1100 tons; 2 4·7-in., 4 12-pdr., 12 Maxims; 2 18-in. torpedo tubes; 5700 I.H.P.; 23 knots.

Venezuela.—Gunboats Bolivar, 571 tons, 18·6 knots, and Miranda, 200 tons, 12 knots; transports Restaurador, 568 tons, and Zamora, 350 tons. Maresa Sucre (ex Isla de Cuba), drill ship, bought from United States, 1912.

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BRITISH AND FOREIGN FLOTILLAS.

Great Britain.

Name or Number.	Built by.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement.	Coal Capacity.
Great Britain.													
TORPEDO-BOAT DESTROYERS.			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
†Bruizer	Thornycroft ..	1895	201·6	19	7·3	2	265	4,500	27·97	1-12 pr. 5-6 prs.	1	45	60
Conflict	White	1894	205·6	20	..	2	320	4,370	27·21	1-12 pr. 5-6 prs.	2	50	60
Fervent	Hanna	1895	200	19	7·8	2	275	3,800	[27]	1-12 pr. 5-6 prs.	1	50	70
Lightning	Palmer	1895	200	19·7	6·5	2	275	4,007	27·94	1-12 pr. 5-6 prs.	2	50	60
Opossum	Hawthorn	1895	200	19	5·2	2	295	4,052	28·24	1-12 pr. 5-6 prs.	1	50	60
Porcupine	Palmer	1895	200	19·7	6·5	2	275	3,866	27·91	1-12 pr. 5-6 prs.	2	50	60
Ranger	Hawthorn	1895	200	19	5·2	2	295	3,900	27·13	1-12 pr. 5-6 prs.	1	50	60
Sunfish	Hawthorn	1895	200	19	5·2	2	295	4,292	27·62	1-12 pr. 5-6 prs.	1	50	60
Surly	Thomson	1894	205·6	19·5	5·25	2	280	4,400	28·05	1-12 pr. 5-6 prs.	2	50	50
Zephyr	Hanna	1895	200	19	5·3	2	275	3,850	[27]	1-12 pr. 5-6 prs.	1	50	60
†Albatross	Thornycroft ..	1898	227·6	21·25	8·5	2	430	7,900	31·5	1-12 pr. 5-6 prs.	2	68	100
†Angler	,, ..	1897	210	19·6	7·1	2	310	5,800	30·37	1-12 pr. 5-6 prs.	2	60	80
Arab	Brown & Co. ..	1901	218	20·0	5·6	2	470	6,000	31	1-12 pr. 5-6 prs.	2	60	80
†Avon	Vickers	1896	210·6	21·6	5·6	2	355	6,000	30	1-12 pr. 5-6 prs.	2	60	80
Bat	Palmer	1896	215	20·75	6·8	2	360	6,185	30·1	1-12 pr. 5-6 prs.	2	60	91
†Bittern	Vickers	1897	210·6	21·6	5·6	2	355	6,000	30	1-12 pr. 5-6 prs.	2	60	80
Brazen	Brown & Co. ..	1896	218	20·0	5·6	2	315	6,000	30	1-12 pr. 5-6 prs.	2	60	80
†Bullfinch	Earle's Co.	1898	210	20·6	5·8	2	345	5,800	30	1-12 pr. 5-6 prs.	2	60	80
†Cheerful	Hawthorn	1897	210	21·0	8	2	355	6,000	30	1-12 pr. 5-6 prs.	2	62	82
†*Coquette* (1)	Thornycroft ..	1897	210	19·5	7·2	2	335	5,800	30·21	1-12 pr. 5-6 prs.	2	60	80
Crane	Palmer	1896	215	20·7	6·8	2	360	6,336	30·3	1-12 pr. 5-6 prs.	2	60	80
†Cygnet	Thornycroft ..	1898	210	19·5	7·2	2	335	5,800	30·3	1-12 pr. 5-6 prs.	2	60	80
†Cynthia	,, ..	1898	210	19·5	7·2	2	355	5,800	30·2	1-12 pr. 5-6 prs.	2	60	80
†Desperate	,, ..	1896	210	19·6	7·2	2	310	5,800	30	1-12 pr. 5-6 prs.	2	60	80
†Dove	Earle's Co.	1898	210·0	20·6	5·8	2	345	5,800	30	1-12 pr. 5-6 prs.	2	60	80
Earnest	Laird	1896	210·6	21·7	5·3	2	355	6,000	30·13	1-12 pr. 5-6 prs.	2	58	80
Electra	Brown & Co. ..	1896	218	20·0	5·6	2	350	6,000	30	1-12 pr. 5-6 prs.	2	58	80
Express	Laird	1897	227·6	22·0	9	2	465	9,000	31	1-12 pr. 5-6 prs.	2	60	80
Fairy	Fairfield	1897	227·6	22·0	9	2	355	6,000	30	1-12 pr, 5-6 prs.	2	60	80
†Falcon	,, ...	1899	220	21·3	9	2	375	6,000	30	1-12 pr. 5-6 prs.	2	60	80
†Fame	Thornycroft ..	1896	210·6	19·6	7·1	2	310	5,800	30·16	1-12 pr. 5-6 prs.	2	60	80
Fawn	Palmer	1897	215	20·7	6·8	2	360	6,581	30·5	1-12 pr. 5-6 prs.	2	60	91
Flirt	,, ...	1897	215	20·7	6·8	2	360	6,682	30	1-12 pr. 5-6 prs.	2	60	91
Flying Fish	,, ...	1897	215	20·7	6·8	2	360	6,416	30·4	1-12 pr. 5-6 prs.	2	58	91
†Foam	Thornycroft ..	1896	210	19·6	7·1	2	310	5,800	30·18	1-12 pr. 5-6 prs.	2	58	80
Gipsy	Fairfield	1897	227·6	22·0	9	2	355	6,000	30	1-12 pr. 5-6 prs.	2	60	80
Greyhound	Hawthorn	1900	210	21	8·6	2	385	6,000	30	1-12 pr. 5-6 prs.	2	60	90
Griffon	Laird	1896	210·0	20	5·3	2	355	6,000	30·11	1-12 pr. 5-6 prs.	2	58	80
Kestrel	Brown & Co. ..	1898	218	20·0	5·6	2	350	6,000	30	1-12 pr. 5-6 prs.	2	60	80
Kangaroo	Palmer	1900	215	20·75	6·8	2	370	6,500	30	1-12 pr. 5-6 prs.	2	60	91
Leopard	Vickers	1897	210	20·0	5·6	2	350	6,000	30	1-12 pr. 5-6 prs.	2	60	80
Leven	Fairfield	1898	218·0	20·0	5·6	2	370	6,000	30	1-12 pr. 5-6 prs.	2	58	80
Lively	Laird	1900	218	20·0	5·6	2	385	6,000	30	1-12 pr. 5-6 prs.	2	58	80
Locust	,, ...	1896	210	21·7	5·3	2	355	6,000	30·16	1-12 pr. 5-6 prs.	2	58	80
†Mallard	Thornycroft ..	1896	210·6	19·6	7·1	2	310	5,800	30·11	1-12 pr. 5-6 prs.	2	60	80
Mermaid	Hawthorn	1898	210	21·0	8	2	355	6,000	30	1-12 pr. 5-6 prs.	2	60	82
Myrmidon	Palmer	1900	215	20·75	6·8	2	370	6,500	30	1-12 pr. 5-6 prs.	2	62	91
Orwell	Laird	1898	218·0	20·0	5·6	2	360	6,000	30	1-12 pr. 5-6 prs.	2	58	80
Osprey	Fairfield	1897	227·6	22·0	9	2	355	6,000	30	1-12 pr. 5-6 prs.	2	60	80
†Ostrich	,, ...	1900	210	21·0	9	2	375	6,000	30	1-12 pr. 5-6 prs.	2	60	80
Otter	Vickers	1896	210	20·0	5·6	2	350	6,000	30	1-12 pr. 5-6 prs.	2	60	80
Panther	Laird	1897	210·6	21·7	5·3	2	355	6,000	30·14	1-12 pr. 5-6 prs	2	58	80
Peterel	Palmer	1899	215	20·8	..	2	370	6,200	30	1-12 pr. 5-6 prs.	2	62	85
Quail	Laird	1895	213·6	21·6	5·3	2	355	6,000	30·38	1-12 pr. 5-6 prs.	2	58	90
Racehorse	Hawthorn	1900	210	21	8·6	2	385	6,000	30	1-12 pr. 5-6 prs.	2	60	90
Roebuck	Hawthorn	1901	210	21	8·6	2	385	6,000	30	1-12 pr. 5-6 prs.	2	60	90
Seal	Laird	1897	218·0	20·0	5·6	2	355	6,000	30·15	1-12 pr. 5-6 prs.	2	58	80
Spiteful	Palmer	1899	215	20·75	6·8	2	365	6,500	30·1	1-12 pr. 5-6 prs.	2	62	81
Sprightly	Laird	1900	218	20·0	5·6	2	385	6,000	30	1-12 pr. 5-6 prs.	2	58	80
†Stag	Thornycroft ..	1900	210	19·75	7·2	2	320	5,800	30·34	1-12 pr. 5-6 prs.	2	60	80

All Jarrow-built destroyers have Reed's boilers. † Thornycroft W.T. boilers.

(1) Sunk in North Sea by mine, March 10, 1916.

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Great Britain—*continued.*

Name or Number.	Built by.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement.	Coal Capacity.
TORPEDO-BOAT DESTROYERS—*contd.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Star	Palmer	1896	215	20·75	6·88	2	360	6,266	30·7	1–12 pr. 5–6 prs.	2	58	91
Success	Doxford	1901	210·0	21·0	9·2¼	2	380	6,000	30	1–12 pr. 5–6 prs.	2	62	43
†Sylvia	,, ...	1897	210	19·9	7·6	2	350	5,400	30	1–12 pr. 5–6 prs.	2	58	80
Syren	Palmer	1900	215	20·75	6·8	2	390	6,500	30	1–12 pr. 5–6 prs.	2	..	91
Taku	Schichau	1898	193·6	20	5	2	305	6,500	32	6–3 pr. Q.	3	..	67
Thorn	Brown & Co. ..	1900	210	21	5·5	2	380	6,000	30	1–12 pr. 5–6 prs.	2	58	80
Thrasher	Laird	1895	210·6	21·7	5·3	2	355	6,000	30·13	1–12 pr. 5–6 prs.	2	58	80
Vigilant	Brown & Co. ..	1900	210	21	5·5	2	380	6,000	30	1–12 pr. 5–6 prs.	2	58	80
†Violet	Doxford	1897	210	20·75	6·88	2	350	5,400	30	1–12 pr. 5–6 prs.	2	58	80
Virago	Laird	1895	210·6	21·7	5·3	2	355	6,000	30·13	1–12 pr. 5–6 prs.	2	58	80
*a*Vixen	Vickers	1900	210·0	20·0	5·8	2	400	6,000	30	1–12 pr. 5–6 prs.	2	62	88
Vulture	Brown & Co. ..	1898	218	20	5·6	2	345	6,000	30	1–12 pr. 5–6 prs.	2	58	80
Whiting	Palmer	1896	215	20·75	6·88	2	360	6,239	30·2	1–12 pr. 5 6 prs.	2	58	91
Wolf	Laird	1897	218	20	5·6	2	355	6,000	30	1–12 pr. 5–6 prs.	2	58	80
Derwent	Hawthorn	1904	220	23	10	2	534	7,000	25·68		2	70	130
‡Eden	,, ...	1903	220	23	8¼	6	527	7,000	26·22		2	70	130
Exe	Palmer	,,	225	23¼	10	2	540	7,000	25·64		2	70	127
Ribble	Yarrow	1904	225	23¼	10	2	550	7,500	26		2	70	120
Itchen	Laird	1903	225	23¼	10	2	550	7,000	25·64		2	70	130
Usk	Yarrow	,,	225	23¼	10	2	550	7,500	26		2	70	120
Teviot	Yarrow	,,	225	23¼	10	2	550	7,500	26		2	70	120
Ettrick	Palmer	,,	225	23¼	10	2	540	7,000	25·56	4–12 prs.	2	70	127
Foyle	Laird	,,	225	23¼	10	2	550	7,000	25·65		2	70	120
Erne	Palmer	,,	225	23¼	10	2	540	7,000	25·6		2	70	127
Arun	Laird	,,	225	23¼	10	2	550	7,000	25·72		2	70	130
Cherwell	Palmer	,,	225	23¼	10	2	540	7,000	25·6		2	70	127
Dee	Palmer	,,	225	23¼	10	2	540	7,000	25·5		2	70	127
Jed	Thornycroft ..	1904	222	23¼	9·6	2	640	7,500	25·78		2	70	126
Kennet	,, ..	1903	222	23¼	9·6	2	640	7,500	25·99		2	70	126
‡Velox	Parsons	1902	210	23	8¼	8	440	8,000	27	1–12 pr. 5–6 prs.	2	63	130
Waveney	Hawthorn	1903	220	23¼	10	2	534	7,000	25·62	4–12 prs.	2	70	130
Welland	Yarrow	1904	225	23¼	10	2	550	7,500	26		2	70	120
Chelmer	Thornycroft ..	1904							25·7				
Boyne	Hawthorn	1904							25·72				
Colne	Thornycroft ..	1905							25·57				
Doon	Hawthorn	1904							25·8				
Garry	Yarrow	1905							26·5				
Kale	Hawthorn	1904							25·74				
Rother	Palmer	1904							25·51				
Liffey	Laird	1904	222	23¼	9·6	2	600	7,500	25·51	4–12 prs.	2	72	95/126
Moy	,, ...	1904							25·6				
Ness	White	1905							25·62				
Nith	,, ...	1905							25·69				
Ouse	Laird	1905							25·56				
Swale	Palmer	1905							25·59				
Ure	Palmer	1904							25·65				
Wear	Palmer	1905							25·62				

† Thornycroft W.T. boilers.

‡ Hulls and Yarrow boilers of these vessels by Hawthorn Leslie & Co.
a Has four Express W.T. boilers.

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Great Britain—*continued.*

Name or Number.	Built by.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Coal or Oil.
OCEAN-GOING DESTROYERS.			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
‡*Afridi	Armstrong	1907	250	25	8·5	3	872	14,250	32·75	5–12-prs.	2	60	92¼*e*
‡*Cossack	Cammell Laird	1907	270	26	9·3	3	890	14,000	33·15				78
‡*Ghurka	Hawthorn	1907	255	25·7	9·3	3	880	14,250	34				98
¶*Mohawk	White	1907	270	25	8·10	3	865	14,500	34·51				74
†*Tartar	Thornycroft	1907	270	26	9·1	3	870	14,500	35·67				76
¶*Saracen	White	1908	272	26	9·5	3	980	15,500	33·8	2·4-in. B.L.	2	67	84*e*
†*Amazon	Thornycroft	1908	280	26¼	9·2	3	970		33·73				86*e*
¶*Crusader	White	1909	280	26	9·8	3	1045	15,500	35	2·4-in. B.L.	2	71	99*e*
†*Nubian	Thornycroft	1909	280	26¼	9·1	3	985	15,500	31·88				97¼*e*
‡*Viking	Palmer	1909	280	27·3	8·7	3	1090	15,500	..				102¼*e*
‡*Zulu	Hawthorn	1909	280	27	8·9	3	1027	15,500	34				94*e*
◊Albacore	Palmer *b*	1908	215	21	7	..	440	6,000	26 75	3–12 prs.	2	43	..
¶◊Basilisk	White	1910	275	28	8·6	3	934	12,500	27·98	1·4-in., 3–12 prs.	2	96	120*e*
‡◊Beagle	John Brown	1909	269	26·7			940		27·12				
‡◊Bulldog	,,	1909	269	26·7			940		27·4				
‡◊Foxhound	,,	1909	269	26·7			940		27·7				
‡◊Grasshopper	Fairfield	1909	271	27¼			890		27·04				
¶◊Harpy	White	1909	275	28			984		27·75				
‡◊Mosquito	Fairfield	1910	271	27¼			890		27·12				
‡◊Nautilus	Thames Ironworks	1910	267¼	28			964		28·1				
‡◊Pincher	Denny	1910	271¼	28¼			940		27·17				
‡◊Racoon	Cammell Laird	1910	266	28			920		27·07				
‡◊Rattlesnake	Lond. & Glasgow Co.	1910	270¼	27¼			938		27·03				
‡◊Renard	Cammell Laird	1909	266	28			920		27·14				
‡◊Savage	Thornycroft	1910	264	28	9·3	3	885	12,500	27·16	1·4-in., 3–12 prs.	2	96	..
‡◊Scorpion	Fairfield	1910	271	27·9	..	3	890		27·1				
‡◊Scourge	Hawthorn	1910	266¼	28	8·6	3	925		27·06				
‡◊Wolverine	Cammell Laird	1910	266	28	..	3	920		27·1				
‡◊Stour	Cammell Laird *c*	1909	220	23·9	7·11	..	566	7,000	25·58	4·12-prs.	2	..	66¼
‡◊Test									25·62				
‡*Acorn	John Brown	1910	240	25·6	7·10	3	780	13,500	27·22	2·4-in. B.L., 2–12-prs.	2	72	85*e*
‡*Alarm		1910							27·2				
‡*Brisk		1910							27·6				
‡*Cameleon	Fairfield	1910							28·03				
‡*Comet		1910							27·9				
‡*Goldfinch		1910							28				
‡*Fury	Inglis	1911							27·3				
‡*Hope	Swan, Hunter	1910							27·1				
‡*Larne	Thornycroft	1910							28·72				
‡*Lyra		1910							28·88				
‡*Martin		1910							28·9				
‡*Minstrel		1911							28·9				
‡*Nemesis	Hawthorn	1910							27				
‡*Nereide		1910							27·8				
‡*Nymphe		1911							27·5				
¶*Redpole	White	1910							29·8				
¶*Rifleman		1910							29·3				
¶*Ruby		1910							30·23				
‡*Sheldrake	Denny	1911							28·3				
‡*Staunch		1910							28·6				
‡*Acheron	Thornycroft	1911	251¾	26·4	8·7¼	2	780	15,500	29·4	2 4-in. Q.F., 2 12-prs.	2	72	89
‡*Ariel		1911							29·4				
‡*Archer	Yarrow	1911	240	25·7	8·5	2	780	16,000	30·9	2 4-in. Q.F., 2 12-prs.	2	72	87
‡*Attack		1911							30·6				
‡*Badger	Parsons	1911	240	25·10	8·4	2	780	16,500	*d*	2 4-in. Q.F., 2 12-prs.	2	72	86
‡*Beaver		1911							*d*				
‡*Defender	Denny	1911	240	25¾	7·10	3	750	13,500	28·3	2 4-in. Q.F., 2 12-prs.	2	72	89
‡*Druid		1911							*d*				
¶*Ferret	White	1911							30·2				
¶*Forester		1911							29·8				
‡*Goshawk	Beardmore	1911							*d*				
‡*Hind	John Brown	1911							28·1				
‡*Hornet		1911							*d*				
‡*Hydra		1912							*d*				
‡*Jackal	Hawthorn	1911							26·9				
‡*Tigress		1911							28·6				
‡*Lapwing	Cammell Laird	1911							*d*				
‡*Lizard		1911							*d*				
‡*Phœnix	Vickers	1911							*d*				
‡*Sandfly	Swan, Hunter	1911							27·7				
‡*Firedrake	Yarrow	1912	255	25·7	8·6	2	860	20,000	33·2	2 4-in. Q.F., 2 12-prs.	2	72	86
‡*Lurcher									35·3				
‡*Oak									32·4*f*				

* Fitted with turbines and for using oil fuel. † Have Thornycroft W.T. boilers. ‡ Fitted with modified Yarrow W.T. boilers.
◊ Fitted with turbines and for using coal. ¶ Fitted with White-Forster boilers.
b Purchased after completion, March, 1909, to replace Tiger and Gala.
c Purchased after completion, December, 1909, to replace Blackwater and Lee. *d* Designed speed, 27 knots; trial speed not published
e Estimated. Tested with additional 100 tons load.

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Great Britain—*continued.*

Name or Number.	Built by.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Coal or Oil.
OCEAN-GOING DESTROYERS—*contd.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
‡*Acasta	John Brown	1912	260	27	9·4	3	935	24,500	29	3 4-in.	2	100	129
‡*Achates		1912							32·3				
‡*Ambuscade		1913							30·4				
‡*Ardent	Denny	1913	260	28	9·2	2	935	24,000	29·5	3 4-in.	2	100	142
‡*Christopher	Hawthorn	1912	260	27	9·4	3	935	24,500	29	3 4-in.	2	100	129
‡*Cockatrice		1912							30·9				
‡*Contest		1913							29·7				
‡*Fortune	Fairfield	1913	260	27	9·2¼	2	952	25,000	30·7	3 4-in.	2	100	129
‡*Garland	Cammell Laird (*b*)	1913	260	27	9·2¼	2	952	24,500	31	3 4-in.	2	100	..
‡*Hardy (*a*)	Thornycroft	1912	257	26¼	8·0	..	935	24,500	32	3 4-in.	2	100	..
‡*Lynx (1)	London and Glasgow Co.	1913	260	27	9·4	3	935	24,500	32·9	3 4-in.	2	100	129
‡*Midge													
‡*Owl													
‡*Paragon	Thornycroft	1913	257	26¼	9·2¼	2	928	22,500	30·8	3 4-in.	2	100	128
‡*Porpoise													
‡*Unity													
‡*Victor													
‡*Shark	Swan, Hunter	1912	260	27	9·4	3	935	24,500	31·4	3 4-in.	2	100	129
‡*Sparrowhawk									30·7				
‡*Spitfire									30·3				
‡*Laforey	Fairfield	1913	260	27·8	9·5	2	965	24,500	29	3 4-in.	..	100	135
‡*Lawford		1913											
‡*Louis (2)		1913											
‡*Lydiard		1914											
‡*Leonidas	Palmer (*b*)	1913											
‡*Lucifer		1913											
‡*Llewellyn	Beardmore	1913											
‡*Lennox		1914											
‡*Laertes	Swan, Hunter (*c*)	1913											
‡*Lysander		1913											
‡*Laurel	White	1913											
‡*Liberty		1913											
‡*Loyal	Denny	1913											
‡*Legion		1914											
‡*Lance	Thornycroft	1914											
‡*Lookout		1914											
‡*Lark	Yarrow	1913											
‡*Linnet		1913											
‡*Laverock		1913											
‡*Landrail		1914											
‡*Milne	John Brown	..	..	..	..	..	..	..	..	..	..	..	..
‡*Moorsom													
‡*Morris													
‡*Matchless	Swan, Hunter (*c*)	..	..	..	..	..	..	..	..	..	..	..	..
‡*Murray	Palmer	..	..	..	..	..	..	..	..	..	..	..	..
‡*Myngs													
‡*Miranda	Yarrow	..	..	..	..	..	..	..	..	..	..	..	..
‡*Minos													
‡*Manly													
‡*Mentor	Hawthorn	..	..	..	..	..	..	..	..	..	..	..	..
‡*Mansfield													
‡*Meteor	Thornycroft	..	..	..	..	..	..	..	..	..	..	..	..
‡*Mastiff													
‡*Lightfoot	White	..	..	..	..	..	..	..	..	..	..	..	..
‡*Marksman	Hawthorn	..	..	..	..	..	..	..	..	..	..	..	..
TORPEDO BOATS.													
FIRST CLASS—													
025–027 (3 boats)	Thornycroft	1886	127·5	12·5	6·2	1	60	600	21	2–3 prs.	3	..	10
033	Yarrow	1886	125	13	5·5	1	66	670	19·5	2–3 prs.	5	15	20
034	White	1886	125	14·6	4	1	66	950	18–19	..	5	15	..
041, 042 (2 boats), 049–055 (7 boats), 057, 058 (2 boats)	Thornycroft	1886	127·5	12·5	6·2	1	60	700	21	2–3 prs.	4	15	..
065–068 (4 boats), 071–074 (4 boats), 076–078 (3 boats)	Yarrow	1886	125	13	5·5	1	75	700	19–20	2–3 prs.	5	15	20
079	,,	1886	125	13	5·5	..	75	1,000	22·4	2–3 prs.	..	15	20
80	,,	1887	135	14	6	1	105	1,540	23	4–3 prs.	5	21	30
81 (*ex*-Swift)	White	1885	150	17·5	..	1	125	..	..	6–3 prs.	3	25	35
82, 83 (2 boats)	Yarrow	1889	130	13·5	5·5	1	85	1,100	23	3–3 prs.	3	19	20
85–87 (3 boats)	,,	1889	130	13·5	5·5	1	85	1,100	23	3–3 prs.	3	19	20
88, 89 (2 boats)	,,	1894	142	14·75	4·5	1	112	1,600	..	3–3 prs.	3	18	20
90	,,	1895	140	14·25	3·7	1	100	1,430	..	3–3 prs.	3	18	18
91, 92 (2 boats)	Thornycroft	1894	140	15·5	7·5	1	130	2,400	23–24	3–3 prs.	3	18	25
93	,,	1893	140	15·5	5·4	2	130	2,200	23·5	3-3 prs.	3	18	25
95, 96 (2 boats)	White	1894	140	15·5	..	1	130	2,000	23·2	3–3 prs.	3	18	25
97	Laird	1893	140	15·5	..	1	130	2,690	23·35	3–3 prs.	3	18	25
98, 99 (2 boats)	Thornycroft	1901	160	17	8·4	1	178	2,850	25	3–3 prs.	3	32	20
101	M'Arthur	1888	130·5	14	..	1	92	1,060	21	2–3 prs.	3	18	35
102, 103 (2 boats)	Thornycroft	1888	134·6	14·8	7·1	1	96	1,050	23·2	2-3 prs.	3	18	..
104–105 (2 boats)	White	1889	130	14·5	..	1	95	1,250	20	2–3 prs.	3	18	..
107, 108 (2 boats)	Thornycroft	1901	160	17	8·4	1	178	2,850	25	3–3 prs.	3	32	20
109–113 (5 boats)	,,	1902	166	17·25	8·4	1	200	2,900	25	3–3 prs.	3	32	42
114–117 (4 boats)	White	1903	165	17·6	8·8	1	205	2,900	25	3–3 prs.	3	32	28

* Fitted with turbines and for using oil fuel. ‡ Fitted with modified Yarrow W.T. boilers.
a Fitted with Diesel engines for cruising purposes. *b* Turbines by Parsons. *c* Turbines by Wallsend Co.
( ) Sunk in North Sea by mine, August 9, 1915. (2) Lost at Suvla Bay. For reference to recent destroyer classes see page 131.

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Great Britain—*continued.*

Name or Number.	Built by.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Coal or Oil.
TORPEDO BOATS—*cont.*													
FIRST CLASS—*cont.*			Feet.	Feet.	Feet.		Tons.		Knots.				
*Pro. 1905-6 (1) 5 boats (1-5)	¶White	1906	175	17¼	5·8	3	235	3,750	26	2-12 prs.	3	35	20 *f*
*Pro. 1905-6 (1) 4 boats (6-9)†	¶Thornycroft ..	1906-7	166¼	17¼	6·3	3	255	3,750	27·3	2-12 prs.	3	35	
*Pro. 1906-7 4 boats (13-16) ..	White	1907	182	18	5·10	3	256	4,000	26	2-12 prs.	3	..	23-5
*Pro. 1906-7 2 boats (17-18)‡..	Denny	1907	180	18	5·6	3	251	4,000	26	2-12 prs.	3	..	
*Pro. 1906-7 2 boats (19-20)‡..	Thornycroft.. ..	1907-8	178·6	18·3	6.5	3	280	4,000	26	2-12 prs.	3	..	
*Pro. 1906-7 2 boats (21-22)‡..	Hawthorn	1907-8	185	18·6	6·6	3	308	4,000	26	2-12 prs.	3	..	
*Pro. 1906-7 No. 23 ‡	Yarrow..	1907	177·3	18	5·4	3	253	4,000	26	2-12 prs.	3	..	
*Pro. 1906-7 No. 24 ‡	Palmer	1908	177	17 9	6·5	3	292	4,000	26	2-12 prs.	3	..	
*Pro. 1907-8 4 boats (25-28)	White	1908	182	18	6 6	3	283	4,000	26	2-12 prs.	3	..	25
*Pro. 1907-8 2 boats (29-30)‡	Denny	1908	180	18	5·3	3	259	4,000	26	2-12 prs.	3	..	25¼
*Pro. 1907-8 2 boats (31-32)†	Thornycroft.. ..	1908	178·6	18 75	6·2	3	287	4,000	26·5	2-12 prs.	3	33	24¼
*Pro. 1907-8 2 boats (33-34)‡	Hawthorn .. .	1909	185	18 6	6·5	3	3 6	4,000	26	2-16 prs.	3	..	23¼
*Pro. 1907-8 3 boats (35-36)‡	Palmer	1909	177	17·9	6 6	3	298	4,000	26	2-12 prs.	3	33	24

* Fitted with turbines and for using oil fuel. † Have Thornycroft W.T. Boilers. ‡ Fitted with modified Yarrow W.T. boilers.
¶ These boats were originally named, as shown in the *Naval Annual* for 1906–1907. *f* 1000 knots.
(1) Nos. 10 and 12 were torpedoed and sunk by submarine, June 10, 1915; and No. 11 was sunk by a mine, March 10, 1916, all in the North Sea.

Number.	Built by.	Launched.	Dimensions. Length.	Beam.	Number of Screws.	Submerged Displacement.	Indicated Horse-Power.	Speed. Surface.	Submerged.	Torpedo Tubes.	Complement.	Fuel.
SUBMARINES.			Feet.	Feet.		Tons.		Knots.	Knots.			Tons.
9 boats (Nos. A 5-A 13, 1903-4) ..	Vickers	1904	150	..	..	204	600	16	9	2	..	..
10 boats (B Class) ..	,, .. .	1905	135	13¼	..	313	600	13	9	2	..	15
10 boats (1905-6) C class	,, .. .	1906-7	135	13¼	..	313	600	14	10	2	..	15
5 boats (1906-7) C 12-16	,, ...	1907-8	135	13¼	..	313	600	13	..	2	..	15
1 boat (1906-7) D 1 ..	,, ...	1908	..	..	2	595	1,200	16	10	3	..	..
2 boats (1906-7) C 17 & C 18	Chatham	1908	135	13¼	..	313	600	13	..	2	..	15
2 boats (1907-8) C 19-C 20..	Chatham .. .	1909	135	13¼	..	321	600	13	10	2	..	15
19 (1907-8)— C 21-C 24 .. .. C 25-C 30	Vickers	(1908) (1909)	135	13¼	..	321	600	13	..	2	..	15
2 (1908-9) C 33-C 34 .	Chatham .. .	1910	135	13¼	..	321	600	13	..	2	..	15
7 (1908-9)— C 31-C 32	Vickers	1909										
C 35 C 36	,, ...	1909	135	13¼	..	321	600	13	..	2	..	15
C 37-C 38	,, ...	1910										
D 2	,, ...	1910	..	..	..	..	..	..	..	3	..	..
2 (1909-10) D 7-D 8..	Chatham	1911	..	..	..	604	1200	..	..	3	..	..
3 (1909-10) D 3-4-6..	Vickers .. .	1911	..	..	..	..	..	..	..	3	..	..
2 (1910-11) E 1-E 2	Chatham	1912	176	22¼	..	800	1600	15	..	3	28	..
3 (1910-11) E 4-E 6..	Vickers .. .	1912	176	22¼	..	800	1600	15	..	3	28	..
2 (1911-12) E 7-E 8..	Chatham	1912	..	..	..	..	..	..	..	3	28	..
3 (1911-12) E 9-E 11.	Vickers .. .	1913-14	..	..	..	..	..	..	..	3	28	..
1 (1911-12) S. 1 ..	Scotts'	1914	..	..	..	..	..	..	..	..	..	..
2 (1912 13) E 12-E 13	Chatham	Bldg.										
2 (1912-13) E 14&E 16	Vickers .. .		..	..	..	..	..	..	..	..	..	..
1 (1912-13) V. 1 ..	Vickers .. .											
2 (1912-13) W 1-W 2	Armstrong .. .											
1 (1912-13) Nautilus	Vickers..		..	..	..	..	..	..	..	..	..	..
2 (1913-14) E 17-E 18	Chatham		..	..	..	..	..	..	..	..	..	..
1 (1913-14) F 1.. ..	,, ...		..	..	..	..	..	..	..	..	..	..
2 (1913-14) S 2 S 3 ..	Scotts'		..	..	..	..	..	..	..	..	..	..
3 (1913-14) V 2 V 4	Vickers		..	..	..	..	..	..	..	..	..	..
2 (1913 14) W 3-W 4	Armstrong		..	..	..	..	..	..	..	..	..	..
1 (1913 14) Swordfish	Scotts'		..	..	..	..	..	..	..	..	..	..

FLOTILLAS OF THE DOMINIONS.—*Australia.*

Name or Number.	Built by.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement.	Coal Capacity.
TORPEDO-BOAT DESTROYERS.			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Yarra	Denny	1910	245¾	24¼	7·8	3	700	9,500	27	1 4-in., 3 12-pdr.	3	66	130
Parramatta	Fairfield	9 0	245¾	24¼	7·8	3	700	9,500	28·48				
Warrego	Fairfield*	1911	245¾	24¼	7·8	3	700	9,500	28				
Swan	Sydney..	Bldg.	Details not published.			..	..	..	..	..	..		..
Derwent	Sydney..	1914											
Torrens	Sydney..	1915											

* Transported in sections and reconstructed in Australia.

The loss of the following British submarines has been officially announced since the last issue of the *Naval Annual*:—E 13, grounded at Saltholm and disabled by German destroyers, August 13, 1915; E 7 and E 20, sunk in Sea of Marmora, September and November, 1915; E 17 and one unnamed boat, grounded off the Dutch coast, January, 1916.

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Argentine Republic.

Name Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Corrientes	Yarrow ..	1896	190	19 6	7·4	2	280	4,000	27·4 *t.*	1 14-pr.	3	54	80
Missiones..	Yarrow ..	1896	190	19·6	7·4	2	280	4,000	26·0 *t.*	3 6-pr,	3	54	80
Entre Rios	Yarrow ..	1896	190	19·6	7·4	2	280	4,000	26·7 *t.*	Q.F., 2 M.	3	54	80
Mendoza, Rioja, Salta, San Juan ..	Nantes ..	1911	283·2	28·3	9·9	..	950	18,000	32	4 4-in.	4	110	250*
Catamarca, Jujuy ..	Germania ..	1911	286·7	27·1	8·6	2	940	18,000	32	4 4-in.	4	110	250*
Cordoba, La Plata ..	Schichau ..	1911	279	29·6	7·3	..	890	19,000	34 7	4 4-in.	4	110	290*
FIRST CLASS—													
2 boats	Thornycroft	1890–1	150	14·5	5·2	2	110	1,500	24·52	3 3-prs.	3	27	22
6 boats	Yarrow ..	1890	130	13·5	6	1	85	1,200	23–24	2 3-pr. Q.F.	2	15	15

The two 150-ft. boats are named Comodoro Py and Murature.
The six 130-ft. boats are named Bathurst, Buchardo, Jorge, King, Pinedo, and Thorne.
* Also oil fuel 50–110 tons French boats, Rateau turbines; German, German Admiralty type.

Austria-Hungary.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Tatra, Balaton, Csepel, *Lika* (1), Orjenn, *Triglav* (2)	Fiume.. ..	1912 1913	265·9	25·6	8·0	2	787	17,000	33	2 4-in. 4 12-pr.	2	..	..
Huszar	Yarrow ..	1905											
Streiter	Trieste ..	1906											
Ulan		1906											
Wildfang		1906											
Uskoke		1907											
Scharfschütze		1907											
Dinara	Fiume ..	1908 1909	219·8	20·3	..	2	394	6,000	28·5 30	1 12-pr. 7 3-pr.	2	64	..
Csikos													
Pandur													
Reka													
Turul													
Velebit													
Varasdiner & 11 others	Trieste ..	1914–15											
FIRST CLASS—													
Kaiman	Yarrow ..	1905											
Alligator	Trieste ..	1906–7											
Anaconda													
Drache													
Delplin													
Greif													
Hai													
Krokodil													
Moewe													
Narwal													
Pinguin													
Schwalbe			179·9	18·0	8·6	1	197	3,000	26	4 3-pr.	..	25	..
Seehund													
Wal													
Triton	Fiume ..	1910											
Alk													
Echse													
Hydra													
Kormoran													
Krake													
Molk..													
Phönix													
Polyp													
Skorpion													
Boa	Yarrow ..	1898–9	152·6	15·3	7·6	1	133	2,000	24·3	2 3-pr.	3	24	30
Cobra													
Kigyo													
Python													
Viper	Yarrow ..	1896	147·6	14·9	7·6	1	130	2,000	26·5	2 3-pr.	2	26	30
Natter	Yarrow ..	1896	150	17·5	8·8	2	152	2,300	26·5	2 3-pr.	3	..	30
74 T—81 T (8) ..	Trieste ..	1913 1914	188	19·0	5·0	2	246	5,000	28 5	2 3-pr.	2	..	..
82 F—97 F (6) ..	Fiume.. ..												
98 M—100 M (3) ..	Monfalcone ..												
SUBMERSIBLES—													
U 1 and 2	Pola	1908–9	100	9·8	..	..	216 240	720 200	12·2–7·3	..	3	..	..
U 4	Kiel, Germania	1908	141·8	12·6	..	2	235 295	600 320	12–9	..	2	17	..
U 5 and 6	Fiume.. ..	1909	105	21·0	..	..	235 50	500	11·4–10	1 14-pr.	5	..	..
U 7–10, 13, 14 ..	Fiume.. .. Kiel, Germania	1914 1915											
Zenta (ex-Curie) ..	Cherbourg ..	1911	160	16·4	13·6	2	390	340	7¼–12¼	..	7	24	..

It is believed that the Austro-Hungarian Navy has suffered some losses in its flotillas, in addition to those indicated. Several submarines shown below have been sent overland in sections to Trieste or Pola from the Germania Yard, Kiel. Curie captured from the French off Pola, December, 1914.

(1), (2) Lika and Triglav, destroyed off Durazzo, December 30, 1915.
The destroyers have Yarrow boilers. About twenty torpedo-boats (83 tons), built 1890–92, are of doubtful value.
U 3 sunk, August 12, 1915; U 11 believed to have been destroyed by a bomb dropped by a French aeroplane, July 1, 1915; U 12 torpedoed by an Italian submarine, August 12, 1915; another, number unknown, said to have been destroyed by a mine near Cattaro, December, 1915.

Brazil.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Para	Yarrow	1908	240	23·6	10	2	550	7,014	27·25	2 4-in., 4 3 prs.	2	..	140
Amazonas		1908						6,898	27·17				
Piahuy		1908						6,563	27·21				
Matto Grosso		1908						7,403	27·16				
Parahyba		1909						6,700	27·29				
Rio Grande do N.		1909						7,778	27·27				
Alagoas		1909						7,403	27·25				
Santa Catharina		1909						6,982	27·30				
Parana		1910						8,877	28·74				
Sergipe		1909						8,554	27·60				
FIRST CLASS—													
Pedro Ivo	Elbing	1892–3	152	17·1	7·9	2	130	2,200	28	2–1 prs.	3	24	30
Silvado													
Goyaz	Yarrow	1907	152·5	15·3	..	3	..	..	26·5	2–3 prs.	2	..	..
Gonzales	Thornycroft	1908	152·5	15 3	..	3	..	..	26·5	2–3 prs.	2	..	..

Five additional destroyers and three large submarines are proposed.
Three submersibles have been completed at Muggiano (F.I.A.T.), Medusa type improved (250–370 tons, 14–8·5 knots). A Special Laurenti submarine salvage and testing vessel, named Caera, 3800 tons, 328 ft. long, 50 ft. beam.

Chile.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Almirante Lynch, Condell	White	1912, 1913	320	32·6	11·1	3	1850	27,000	31·7	6–4-in. 2 M.	3	..	507
Thome, Talcahuano	Laird	1898	238·8	27·9	9·8	—	750	4,500	20	3 3·8-in., 4–3-pr.	5	..	100
Capitan Orella	Laird	1896	210	21·6	5·4	2	300	6,000	30·17	1-12 pr. Q.F. 5 6 pr.	2	65	90
Capitan Munoz Gamero	Laird	1896	210	21·6	5·4	2	300	6,000	30·42	1-12 pr. Q.F. 5–6 pr.	2	65	90
Teniente Serrano	Laird	1896	210	21·6	5.4	2	300	6,000	30·35	1–12 pr. Q.F. 5 6 pr.	2	65	90
Guardia-Marina Riquelme	Laird	1896	210	21·6	5·4	2	300	6,000	30·09	1-12 pr. Q.F. 5–6 pr.	2	65	90
Capitan Merino Tarpa, Capitan O'Brien	Laird	1901	210	21·6	5·4	2	350	6,000	30	Do.	2	65	90
FIRST CLASS—													
Injeniero Hyatt, Cirujano Videla, Injeniero Mutilla, Guardia-Marina Contreras, Capitan Thompson, and Teniente Rodriguez (Viper type)	Yarrow	1896, 1898	152·6	15·3	7·9	1	140	2,200	27·5 27·2	3-3 pr. Q.F.	3	28	40

Four big destroyers or flotilla leaders (Lynch class) building at Cowes were taken over for the British Navy. Two submarines built by the Electric Boat Co., N.Y. (400 tons submerged, 8 tubes), were bought by the Canadian Government for the Pacific coast, and named C.C. 1 and 2.

China.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
FIRST CLASS—													
Cheng-Feng, Fu-Po, Fei-Yun	Elbing	1912	..	..	..	..	400	6000	36·8	2 12-pr., 4 3-pr.	2	..	..
Luang Tuan	Trieste	1912	..	..	..	..	400	6000	32	2 12-pr., 2 3 pr.	2	..	..
2 boats	Stettin	1897	123·5	21·7	..	..	120	..	20	2 1-pr.	3	20	15
Hupeng, Huchung, Hujing, Hungo	Kobe	1906–7	..	..	.	..	97	950	23	2 3-pr.	3	..	..
SECOND CLASS—													
1 boat	Foochow	1903	88·6	6·7	3·3	1	30	550	20·5				

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Denmark.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
FIRST CLASS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Ormen	Copenhagen	1907	125	14·3	..	..	98	2,000	26	2 1-pr.	3	..	21
Hajen	Copenhagen	1896											
Havörnen	Copenhagen	1897	154·3	15·4	7·9	2	142	2,317	22·9	1 4·7-in. 1 1-pr.	3	..	..
Söbjörnen	Copenhagen	1898											
Delfinen	Thornycroft	1883	111·5	12·6	6	1	59	620	20	1 mach.	2	14	9
Havhesten	Thornycroft	1888	137·9	14	7	1	94	1,200	22·8	2 1-pr. revs.	4	20	15
Hvalrossen	Thornycroft	1884	114	12·6	6·5	1	64	660	18·7	1 mach.	2	14	10
Makrelen	Copenhagen	1893	140	14·2	7	2	112	1,200	..	..	..	..	16
Narhvalen	Thornycroft	1888	137·9	14	7	1	94	1,200	22·3	2 1-pr. revs.	4	20	15
Nord Kaperen.. ..	Copenhagen	1893	140	14·2	7	2	112	1,200	..	2 1-pr. revs	4	..	16
Sölöven	Thornycroft	1887	131	14·8	6·8	1	89	1,200	23·3	2 mach.	4	20	14
Sölven	Havre.. ..	1880	94·8	10·9	3·9	1	37	450	18·1	..	2	12	5
Springeren	Copenhagen	1891	119	13	4·9	1	81	800	18·3	2 1-pr. revs.	2	20	14
Stören	Thornycroft	1887	131	14·8	6·8	1	89	1,200	23	2 mach.	4	20	14
Sværdfisken	Thornycroft	1881	110	12	6	1	49	600	20·7	1 mach.	2	14	9

Destroyers (230 tons, 27 knots), built, as follows:—Fyvesfisken (Schichau); Soridderen (Yarrow), 27·2 knots; Soulven, Spaekhuggeren (Copenhagen dockyard); Tumleren, Vindhunden (Burmeister and Wain). Three others in hand.
Electric submersible Dikkeren, delivered by F.I.A.T. Co., Muggiano, 1909.—Length, 114 ft. 3 in.; beam, 11 ft.; 103–130 tons, 12-7½ knots. Submersibles Havmanden and Havfruen, of the Holland type, built by the Whitehead company, one at Fiume, the other at Copenhagen dockyard, and at the latter the Neptune, Galathea, Aegir, Ran and Nymfen.

France.

In this table few changes have been made, except in striking out some obsolete vessels and indicating losses in the war.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Arbalète	Normand ..	1903	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Arc	Châlon ..	1903	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Arquebuse..	Normand ..	1902	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Baliste	Rouen ..	1903	183·9	20·11	10·3	2	300	6,000	29·4	1-9pr. 6-3prs.	2	62	75
Bélier	Nantes ..	1903	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Bombarde	Havre (F.&C.)	1903	183·9	20·11	10·3	2	300	6,000	30·5	1-9pr. 6-3prs.	2	62	75
Bouclier	Normand ..	1910	233·8	24·9	9·7	3	715	15,000	33·4	2-3·9in. 4-9pr.	4	62	160
Boutefeu	Bordeaux ..	1909	233·8	24·9	9·7	3	715	13,000	31	2-3·9in 4-9pr.	4	62	160
Branlebas (1)	Normand ..	1907	183·9	21·3	10·3	2	320	5,000	28	1-9prs. 6-3prs.	2	62	84
Carabine	Rochefort ..	1902	183·9	20·11	10·3	2	305	6,300	28	1-9pr. 6-3prs.	2	62	75
Carabinier	Rouen	1908	210·6	21·9	10·3	3	430	7,200	28	6–9 prs.	3	62	120
Carquois	Rochefort ..	1907	190·3	19·6	10·3	2	335	7,200	30	19-pr. 4 3-prs.	2	62	37
Casque	Havre (F.&C.)	1909	233·8	24·9	9·7	3	715	13,000	35·6	2-3 9in. 4-9pr.	4	62	160
Catapulte	Havre (F.&C.)	1903	183·9	20·11	10·3	2	300	6,000	28	1 9pr. 6-3prs.	2	62	75
Cavalier	Normand ..	1910	210·6	21·8	10·3	3	469	8,600	31·2	6–9 prs.	3	62	150
Chasseur	Normand .	1909	210·6	21·9	10.3	3	454	7,200	28	6–9 prs.	3	62	120
Cimeterre	Bordeaux ..	1909	246·0	26	9·7	3	730	13,500	32·7	2-3 9in. 4-9pr	4	62	160
Claymore	Normand ..	1906	190·3	20·11	10·3	2	335	6,000	30·3	1-9pr. 6-3prs.	2	62	75
Cognée	Toulon ..	1907	190·3	20·11	10·3	2	335	6,000	28	1-9pr. 6-3prs.	2	62	75
Coutelas	Rochefort ..	1907	190·3	20·11	10·3	2	335	6,000	28	1-9pr. 6-3prs.	2	62	75
Dard	Rouen ..	1903	183·9	20·11	10·3	2	310	6,500	29·4	1-9pr. 6 3prs.	2	62	75
Durandal	Normand ..	1899	180·5	20·8	10·3	2	300	5,000	28	1-9pr. 6-3prs.	2	62	84
Epée	Havre (F.&C.)	1900	190·3	20·8	10·3	2	335	5,700	26	1-9pr. 6-3prs.	2	62	75
Epieu	Normand ..	1903	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Escopette	Rochefort ..	1900	183·9	20·8	10·3	2	300	5,700	26	1-9pr. 6-3prs.	2	62	75
Etendard	Bordeaux ..	1908	210·6	21·9	10·3	3	430	6,000	28	1-9pr. 6-3prs.	3	..	..
Fanion..	Bordeaux ..	1908	210·6	21·9	10·3	3	430	6,000	28	1-9pr. 6-3prs.	3	..	..
Fanfare	Normand ..	1907	193·9	21·3	10·3	2	320	5,000	28	1-9pr. 6-3prs.	2	62	84
Fantassin	Havre (F.&C.)	1909	210·6	21·8	10·3	3	469	8,600	30·5	6–9 prs.	3	62	150
Fauconneau	Normand ..	1904	210·6	21·9	10·3	3	430	6,000	28	1-9pr. 6-3prs.	3	..	..
Faulx	Nantes ..	1911	233·8	24·9	9·7	3	715	13,000	32	2-3·9in. 4-9pr.	4	62	160
Flamberge..	Rochefort ..	1901	183·9	20 8	10·3	2	300	5,700	26	1-9pr. 6-3prs.	2	62	75
Fleuret	Rochefort ..	1907	190·3	20·11	10·3	2	335	6,000	28	1-9pr. 6-3prs.	2	62	75
Fourche	Nantes ..	1909	233·8	24·9	9.7	3	715	13,000	33 8	2-3·9in. 4-9pr.	4	62	160
Francisque..	Rochefort ..	1904	183·9	20·11	10·3	2	305	6,300	28	1-9pr. 6-3prs.	2	62	75
Fronde	Bordeaux .	1903	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	65
Gabion	Rouen ..	1907	210·6	21·9	10 3	3	430	6,000	28	1-9pr. 6-3prs.	3	..	..
Glaive..	Rochefort ..	1908	190·3	20·11	10·3	2	335	6,000	28	1-9pr. 6-3prs.	2	62	75
Hache	Toulon ..	1908	190·3	20·11	10·3	2	335	6,000	28	1-9pr. 6-3prs.	2	62	75
Hallebarde	Normand ..	1899	180·5	20·8	10·3	2	305	5,300	27·2	1-9pr. 6-3prs.	2	62	84

(1) Branlebas, mined off Belgian coast, Nov. 19, 1915.
N.B.—"F. & C." "Forges et Chantiers." "Normand" means that the boat has been built at that firm's yard at Havre.

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France—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—*cont.*													
Harpon	Bordeaux	1903	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Hussard	Lorient	1909	210·6	21·9	10·3	3	430	7,200	28	6-9 prs.	3	62	120
Janissaire	Rouen	1910	210·6	21·8	10·3	3	469	8,600	28·5	6-9 prs.	3	62	150
Javeline	Nantes	1903	183·9	20·11	10 3	2	300	7,000	29·3	1-9pr. 6 3prs.	2	62	75
Lasnquenet	Bordeaux	1909	210·6	21·8	10 3	3	469	8,600	28	6-9 prs.	3	62	150
Mameluck	Nantes	1909	210·6	21·8	10·3	3	469	8,600	28	6-9 prs.	3	62	150
Massue	Toulon	1908	190·3	20·11	10·3	2	335	6,000	28	1-9pr. 6-3prs.	2	62	75
Mortier	Rochefort	1906	190·3	20·11	10·3	2	335	6,300	28	1-9pr. 6-3prs.	2	62	75
Mousqueton	Châlon	1903	183·9	20·11	10·3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Obusier	Rochefort	1907	190·3	20·11	10·3	2	335	6,300	28	1-9pr. 6-3prs.	2	62	75
Oriflamme	Nantes	1908	210·6	21·9	10·3	3	430	6,000	28	1-9pr. 6-3prs.	3	..	..
Pertuisane	Rochefort	1900	183·9	20·8	10.3	2	300	5,700	26	1-9pr. 6-3prs.	2	62	75
Pierrier	Rochefort	1906	190·3	20·11	10.3	2	335	6,300	28	1-9pr. 63-prs.	2	62	75
Pique	Havre (F.&C.)	1900	190·3	20·8	10.3	2	335	5,700	26	1-9pr. 6-3prs	2	62	75
Pistolet	Nantes	1903	183·9	20·11	10.3	2	300	6,000	28	1-9pr. 6-3prs.	2	62	75
Poignard	Rochefort	1909	190·3	20·11	10.3	2	335	6,000	28	1-9pr. 6 3prs.	2	62	75
Rapière	Rochefort	1901	183·9	20·8	10·3	2	300	5,700	26	1-9pr. 6-3prs.	2	62	75
Sabre	Rochefort	1904	183·9	20·11	10·3	2	305	6,300	28	1-9pr. 6-3prs.	2	62	75
Sabretache	Nantes	1908	210·6	21·9	10·3	3	430	6,000	28	6-9 prs.	3	..	..
Sagaïe	Havre (F.&C.)	1902	183·9	20·11	10·3	2	300	6,000	30·1	1-9pr. 6-3prs.	2	62	75
Sape	Rouen	1907	210·6	21·9	10·3	3	430	6,000	28	1-9pr. 6-3prs.	3	..	..
Sarbacane	Rochefort	1903	183·9	20·11	10·3	2	305	6,300	28	1-9pr 6-3prs.	2	62	75
Spahi	Havre	1908	210·6	21·9	10·3	3	430	7,200	28	6-9 prs.	3	62	120
Stylet	Rochefort	1905	190·3	20·11	10·3	2	335	6,300	..	1-9pr. 6-3prs.	2	62	75
Takou*	Elbing	1898	193·7	21·0	..	2	280	6,000	25	6-3 pr. Q.F.	2	62	67
Tirailleur	Bordeaux	1908	206·9	21·8	9·7	3	410	7,200	28	6-9 pr.	2	62	120
Tromblon	Rochefort	1905	190·3	21·0	10·3	2	335	6,300	25	6-3 pr. Q.F.	3	62	67
Trident	Rochefort	1907	190·3	19·6	10·3	2	335	7,200	30	1-9pr. 6-3prs.	2	62	37
Voltigeur	Nantes	1909	210·6	21·9	10·3	3	430	7,200	28	6-9 prs.	3	62	120
Yatagan	Nantes	1900	190 3	20·8	10·3	2	335	5,700	26	1-9pr. 6-3prs.	2	62	33
Bory, Garnier, Rivière, Mehl, Dehorter (5)	Normand, &c.	1911	243	24·9	10·0	2	740	14,500	31	2 3·9-in., 4 9 prs.	4	81	120
Bisson, ***Renaudin*** (1), Protet, Magon, Comm. Lucas, Mangini (6)	Toulon, etc.	1912 & Bldg.	243	21·9	10 0	3	750	15,000	31	2 3·9-in., 4 9 prs.	2 dbl.	81	120
Henry, Herbert (2)	Rochefort	1911	214·6	21·6	7 8	3	450	8,600	28·5	6 9 prs.	3	62	50
Roux, Lestin, Gabolde (3)	Rochefort & Normand	Bldg.	266	25·6	10·0	2	880	17,000	32	2 3·9-in., 4 9 prs.	2 dbl.	81	..
(4 flotilla leaders, 1200 tons, provided for 1915.)													
SEA-GOING—													
Aquilon	Normand	1895	137·8	14·6	7·9	2	127	2,000	26·17	2-3 prs.	2	34	17
Audacieux	Nantes	1900	144·2	15·2	10·0	2	152	4,200	30	2-3 prs.	3	..	18
Borée	Bordeaux	1900	147·7	16·7	8·0	2	160	4,400	30	2-3 prs.	2	..	18
Bourrasque	Normand	1901	147·7	16·7	8·0	2	160	4,400	31·41	2-3 prs.	2	..	18
Chevalier	Normand	1893	144·3	15·7	6·8	2	134	2,700	27·2	2-1 prs.	2	32	17
Cyclone	Normand	1898	144·2	15·2	10·0	2	152	4,200	30	2-3 prs.	2	..	18
Flibustier	Normand	1894	143	16·4	9·3	2	132	1,500	23·5	2-3 prs.	2	34	16
Forban	Normand	1895	144·2	15·2	10	2	135	3,200	31·2	2-1 prs.	2	..	..
Grenadier	Normand	1892	138	14·7	8·2	2	129	1,400	25·25	2-3 prs.	2	26	15·5
Grondeur	Havre (F.&C.)	1892	147·5	14·5	5	2	130	1,550	24	2-3 prs.	2	27	20
Mistral	Normand	1901	147·7	16·8	8·8	2	182	4,200	30	2-3 prs.	3	..	23
Rafale	Normand	1901	147·7	16·7	8·0	2	160	4,400	31·47	2-3 prs.	2	..	18
Simoum	Havre (F.&C.)	1901	144·2	15·2	10·0	2	152	4,200	30	2-3 prs.	3	..	18
Siroco	Normand	1901	147·7	16·8	8·8	2	182	4,200	30	2-3 prs.	3	..	23
Tramontane	Bordeaux	19 0	147·7	16·7	8·0	2	160	4,400	30	2-3 prs.	2	..	18
Trombe	Nantes	1900	144·2	15·2	10·0	2	152	4,200	30	2-3 prs.	3	..	18
Typhon	Havre (F.&C.)	1901	144·2	15·2	10·0	2	152	4,200	30	2-3 prs.	3	..	18
FIRST CLASS—													
216-226 (11 boats)	Cherbourg, Toulon, etc.	1899-1902	121·6	13·6	8·6	1	86	1,500	23·5	2-1 prs.	2	23	10
227-235 (8 boats)	Bordeaux, etc.	1901	121·4	13·2	8·7	1	86	1,500	23·5	2-1 prs.	2	23	10
236-255 (20 boats)	Bordeaux, etc.	1902	121·4	13·2	8·7	1	90	1,500	23·5	2-1 prs.	2	23	10
256-257 (2 boats)	Bordeaux, etc.	1900	124·8	13·2	8·7	1	97	2,000	26·0	2-1 prs.	3	24	10
258-261 (4 boats)	Bordeaux	1902	124·8	13·2	8·7	1	97	2,000	26·0	2-1 prs.	3	24	10
262 (1 boat)	Creusot	1902	124·8	13·2	8·7	1	97	2,000	26·0	2-1 prs.	3	24	10
264-265 (2 boats)	Bordeaux	1902	124·8	13·2	8·7	1	97	2,000	26·0	2-1 prs.	3	24	10
266-276 (11 boats)	Bordeaux, etc.	1902	124·8	13·2	9·6	1	97	2,000	26·0	2-1 prs.	3	24	10
277-294 (18 boats)	Bordeaux, etc.	1904	124·8	14·0	9·6	1	97	2,000	26·0	2-1 prs.	3	26	10
295-317 (23 boats)	Normand, etc.	1905											
318-367 (48 boats)†	Havre, etc.	1905-7	124·8	14·0	9·6	1	97	2,000	26	2-1 prs.	3	26	10
368-369 (2 boats)	Toulon	1906											

(1) Renaudin sunk by Austrian submarine in the Adriatic, February 18, 1916.
* Captured from the Chinese at Taku, 1900. † Nos. 338 and 347 were lost in collision, October 9, 1914.

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France—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.
			Feet.	Feet.	Feet.		Tons.		Knots.			
SUBMARINES—												
Aigrette	Toulon	1904	117·6	12·9	8·3	1	172	200	10·5	..	..	20
Algérien	Cherbourg	1901	118	9·2	..	1	146	250	8–13	..	..	9
Alose	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Anguille	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Bonite	Toulon	1903	77	7·6	8·0	1	68	60	8	..	.	5
Castor	Rochefort	1903	77	7·6	8·0	1	68	60	8	..	..	5
Cigogne	Toulon	1904	117·6	12·9	8·3	1	172	200	10·5	..	..	20
Circé	Toulon	1907	154·3				344				7	..
Dorade	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Emeraude	Cherbourg	1906	146	12·9	12·0	2	390	600	12	..	6	16
Espadon	Cherbourg	1901	111·6	12·4	5·4	1	106–200	250	8–12	..	2	10
Esturgeon	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Follet	Rochefort	1901	135·8	9 5	9·5	1	185	..	8–12½	..	..	9
Français	Cherbourg	1901	118	9·9	..	1	146	250	8–13	..	..	9
Gnome	Rochefort	1901	135·8	9·5	9·5	1	185	..	8–12½	..	..	9
Grondin	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Korrigan	Rochefort	1901	135·8	9·5	9·5	1	185	..	8–12½	..	..	9
Loutre	Rochefort	1903	77	7·6	8·0	1	68	60	8	..	..	5
Ludion	Cherbourg	1902	77	7·6	8·0	1	68	60	8	..	..	5
Lynx	Cherbourg	1902	77	7·6	8·0	1	68	60	8	..	..	5
Méduse	Rochefort	1903	77	7·6	8·0	1	68	60	8	..	..	5
Naïade	Cherbourg	1902	77	7·6	8·0	1	68	60	8	..	..	5
Opale	Cherbourg	1906	146	12·9	12·0	2	390	600	12	..	6	..
Otarie	Rochefort	1903	77	7·6	8·0	1	68	60	8	..	..	5
Oursin	Rochefort	1903	77	7·6	8·0	1	68	60	8	..	..	5
Perle	Cherbourg	1903	77	7·6	8·0	1	68	60	8	..	..	5
Phoque	Rochefort	1904	77	7·6	8·0	1	68	60	8	..	..	5
Protée	Cherbourg	1902	77	7·6	8·0	1	68	60	8	..	..	5
Rubis	Cherbourg	1907	154·3	12·9	12·0	2	390	600	12	..	6	16
Silure	Cherbourg	1901	111·6	12·4	5·4	1	106–200	250	8–12	..	2	10
Sirène	Cherbourg	1901	111·6	12·4	5·4	1	106–200	250	8–12	..	2	10
Souffleur	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Thon	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Topaze	Cherbourg	1908	146	12·9	12·0	2	390	600	12	..	6	..
Triton	Cherbourg	1901	111·6	12·4	5·4	1	106–200	250	8–12	..	2	10
Truite	Toulon	1903	77	7·6	8·0	1	68	60	8	..	..	5
Turquoise (1)	Toulon	1908	146	12·9	12·0	2	390	600	12	..	6	..
Dauphin	Cherbourg	1904	122·8	10·2	7·6	2	168	220	10½	..	..	..
Argonaute	Toulon	1905	160·6	13·9	9.0	1	301	330	11	..	4	20
Pluviôse, Ventôse, Nivôse, Germinal, Floréal, Prairial, Messidor, Thermidor, Fructidor, Brumaire, Frimaire	Cherbourg	1907 to 1912	160	16·4	13·6	2	398	700	7½–12½	..	7	24
Papin, ***Fresnel*** (2), Berthelot	Rochefort	1908 1909	160	16·4	13·6	2	398	700	7½–12½	..	7	24
Monge (3), Ampère, Gay-Lussac	Toulon	1908 & 1909	160	16·4	13·6	2	398	700	7½–12½	..	7	24
Foucault, Euler, Franklin, Watt, Carnot, Giffard, Faraday, Volta, Newton, Montgolfier Bernouilli, ***Joule*** (4), Coulomb, Arago, Le Verrier,	Cherbourg, Rochefort, Toulon	1909 1912	160	16·4	13·6	2	390	340	7½–12½	..	7	24
Amiral Bourgeois	Cherbourg	1912	184·6	26·3	..	2	555–735	1,560	10–15	..	7	25
Archimède	Cherbourg	1909	211·9	30·2	..	2	577–810	1,700	10–15	..	7	27
Mariotte (5)	Cherbourg	1911	212·6	..	..	2	530–625	1,440	10–15	..	6	25
Charles Brun	Cherbourg	1910	144 6	13·6	..	2	355–450	1,300	10–15	..	7	20
Cloriade, Cornélie, Amphitrite, Astrée, Artémis, Aréthuse, Atalante, Amaranthe, Ariane, Andromaque	Rochefort	1913 & Bldg.	174	16 9	10·9	2	394	1,300	15·8	..	8	20
Gustave Zédé, Néréide	Cherbourg	1913	239 6	19·8	14·4	2	787–1000	4,800	10–20	..	8	40
Bellone, Hermione, Gorgone	Rochefort, Toulon	1914 & Bldg.	198·9	18·0	11·9	2	512	2,100	17·5	..	8	29

(1) Turquoise, injured by gun-fire, Sea of Marmora, November 3, 1915; refloated by the Turks and renamed Ahmed.
(2) Fresnel, sunk by Austrian flotilla near San Giovanni di Medua, December 5, 1915.
(3) Monge, sunk near Durazzo, December 20, 1915. (4) Joule, mined, Dardanelles, May 1, 1915.
(5) Mariotte, sunk by Turkish fire, July 26, 1915.

Daphné and Diane, 620 tons, 1800 H.P., 10 tubes, were building at Cherbourg; and Dupuy de Lôme, Sané, Joessel, Fulton, Laplace, Lagrange, Regnault and Q 114, 820 tons, 4000 H.P., 10 tubes, at Cherbourg, Rochefort and Toulon (Estimates of 1913 and 1914).

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Germany.

There are difficulties in preparing a list of German destroyers at the present time. In the following table an asterisk is placed against those groups from which it is *known* that destroyers have disappeared, but a great many others have been sunk. Obviously, therefore, a number of destroyers figure in the numerical list which have been sunk or otherwise dealt with. There is knowledge of more than a dozen having been destroyed since April last year. On May 1st two were sunk near the North Hinder light, and on October 17th four off the Dutch coast; one was sunk by a French destroyer off Ostend on August 22nd, and another rammed by the Cleopatra off the Schleswig coast on March 25, 1916. Others have been sunk by mine and ramming. A number have been sunk in the Baltic. As to the boats added to the German flotillas there is no knowledge, but the fact that a destroyer bearing the designation of W pursued the Thelma near Landskrona, in November, suggests that boats have been built at the Weser yard, Bremen, or at Wilhelmshaven. For many years past boats have been built only by Schichau (S), Germania, Kiel (G), and Vulcan Stettin (V). At the beginning of the war four small destroyers of 322 tons and 22 knots were building for Holland, and have been taken over; also four powerful boats, which were being built for Argentina, and others for China. Many other destroyers have also undoubtedly been added to the German flotilla.

Name or Number.	Where built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons
D 3, D 4 (2 boat-)	Elbing ..	1888	184	21·8	9·6	2	300	2,000	20	4 6-pr. 2 1-pr. revs.	3	48	90
D 5, D 6 (2 boats)	Elbing ..	1888–9	190·3	23	9·6	2	320	3,000	22¼	4 6-pr. 2 1-pr. revs.	3	48	90
D 7, D 8 (2 boats)	Elbing ..	1890	190·3	23	9·9	2	380	3,500	22¼	6 Q.F.	3	..	..
D 9	Elbing ..	1894	197·0	24·3	9·9	2	380	4,500	26	6 Q.F.	3	..	..
D 10	Chiswick ..	1898	211·9	19·6	8·1	2	310	5,800	28·5	5 3-pr.	3	52	80
S 91-101 (11 boats)*	Elbing ..	1900	200	23	8·9	2	350	6,000	27·5	3 3-pr.	3	..	..
S 102-107 (6 boats)	Elbing ..	1900–1	200	23	8·9	2	350	6,000	27·5	3 3-pr.	3	..	..
G 108-113 (6 boats)	Kiel(Germania)	1901–2	200	22	8·9	2	350	6,000	29·2	3 3-pr.	3	49	100
S 114 class (1 boat)*	Elbing ..	1902–3	200	23	8·9	2	350	6,000	29·2	3 3-pr.	3	49	100
S 120-125 (5 boats)*	Elbing ..	1904	200	23	8·9	2	350	6,000	29·2	3 3-pr.	3	49	100
S 126-131 (5 boats)	Elbing ..	1904–5	205	23	..	2	420	6,000	30	3 6-pr.	3	56	100
G 132-136 (5 boats)	Kiel(Germania)	1906	207·4	23	8·9	2	420	6,500	28	4 6-pr.	3	..	..
G 137	Kiel(Germania)	1907	226·4	25·4	9·8	3	570	10,000	32	1 14-pr. 3 3 pr.	3	72	170
S 138-149 (12 boats)	Elbing	1906–7	331	25·7	8·9	2	530	10,000	30	1 23-pr. 3 4-pr.	3	72	170
V 150-161 (12 boats)	Stettin(Vulcan)	1907–8	269	25·7	10·0	2	670	10,500	30	2 23-pr. 2 M.	3	83	175
V 162-164 (3 boats)	Stettin(Vulcan)	1908–9	242·9	..	9·9	2	616	14,000	30	2 23-pr. 2 M.	3	..	160
S 165-168 (4 boats)	..	..	242	..	9 9	2	616	15,000	..	..	..	..	..
G 169-173 (5 boats)	Kiel(Germania)	1908–9	242	..	9·6	2	616	14,000	30	2 23-pr. 2 M.	3	..	160
G 174-175 (2 boats)	Kiel(Germania)	1909											
S 176, 177, 179	Elbing ..	and	233	25·9	7·6	..	640	15,000	32·5	2 23-pr. 2 M.	3	83	180
V 180-185 (6 boats)	Stettin(Vulcan)	1910											
V 186-191 (5 boats)*	Kiel(Germania)	1910	233	25·9	7·6	..	640	15,000	32·5	2 23-pr. 2 M	3	83	180
G 192-197 (5 boats) *	Stettin(Vulcan)	1911	233	25·9	7·6	..	640	15,000	32·5	2 23-pr. 2 M	3	83	180
V 1-V 6 (6 boats)	Stettin(Vulcan)	1911	532	24·3	7·9	2	561	15,000	32·5	2 23-pr. 2 M.	3	73	160
G 7-G 12 (6 boats)	Kiel(Germania)	1912	532	24·3	7·9	2	555	15,000	32·5	2 23-pr. 2 M.	3	73	160
S 13-24 (12 boats)	Elbing ..	1912 1913	232·5	24·3	9·9	2	555	15,000	32·5	2 23-pr. 2 M.	4	83	146
V 25-30 (6 boats)	Stettin(Vulcan)	1913	..	..	..	..	..	..	32·5	2 23-pr. 4 M.	..	..	..
S 31-36 (6 boats)	Elbing ..	1914											
G 37-42 (6 boats)	Kiel(Germania)	1914	..	..	..	..	..	..	..	..	..	..	..
V 43-48 (6 boats)	Stettin(Vulcan)	1915	..	..	..	..	..	..	..	..	..	..	..
4 boats (ex Dutch)	Stettin(Vulcan)	1915	..	..	..	..	350	..	22	..	4	..	..
4 boats (ex Argentine)	Kiel(Germania)	1915	312·8	30 9	8 6	2	1250	30,000	32	3 4-in.	8 (4 dbl.)	..	342
6 boats (ex Chinese)	Stettin(Vulcan)	1915	269	27	9·2	..	1000	24,500	32	2 4-in. 4 12-pr	2 dbl	..	..
FIRST CLASS—													
T 42—T 47 (6 boats)	Elbing ..	1892	150	15·6	6·7	..	85–88	1,600	20–22¼	2 1-pr. revs.	2	..	17
T 49—T 57 (9 boats)	Elbing ..	1893	154·3	16·4	..	2	110 145	1,600	..	..	3	..	..
S 58—S 87 (30 boats)	Elbing ..	1894–8	158·2	16·9	9·0	2	140	2,300	26	2 1-pr. revs.	3	..	32
G 88—G 89 (2 boats)	Kiel(Germania)	1898	154 3	16·5	..	..	160	2,500	26	2 mach.	3	22	..

NOTE.—The German destroyers (from S 90 downward) are given above in groups showing successive yearly programmes, the last series indicated being that of 1913.

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Germany—*continued.*

SUBMARINES.

It is impossible to estimate with any certainty either the number of German submarines built or of those destroyed. Building has evidently been in progress with the utmost rapidity, and large numbers of boats have been turned out, some of them merely of a small class, capable of being sent overland in sections to Trieste, Constantinople, and Varna, but most of them of great range and power. Of the boats destroyed or otherwise dealt with we know by number only, U 8, 12, 14, 15, 18, 26, 27, 29 and 30, and less definitely U 2, 4, 5, 7, 9, 16, 22, 23, 24 and 51. It must be observed that the numbers do not now represent any regular sequence of construction. Thus U 8 was rammed and sunk off Dover, March 4, 1915, but another U 8 ran ashore on the island of Terschelling, November 4th, and was interned by the Dutch. U 4 was seen at Constantinople, but the original U 4 was an early boat belonging to the experimental stage. Quite a dozen of the early German submarines could have little value now, and modern boats bearing their numbers are evidently Ersatz or substitute vessels.

As to the boats destroyed or captured—the Press Bureau allowed it to be stated that a certain number are in our possession—the facts are not definitely known, but between February 18th and the beginning of November, according to statements published in America on the evidence of the British official chart shown to American correspondents and completed by later information, fifty-eight German submarines had been accounted for, and the destruction of twenty more of them was considered "most probable." This estimate was allowed to be published by the Press Bureau. By this destruction the menace of the submarine was abated or suppressed, but new submarines of more powerful character were built, which entered upon the campaign apparently in February and March, 1916.

Certain of the German submarines are small and for localised service, like those sent overland to Austria and Turkey, but the majority of them are capable of distant service, and some of them are effective mine-layers. A submarine-cruiser, said to be H 5, passed out through the Sound at the end of November. U 51, which is said to have been sunk by Russian vessels in the Black Sea, was of the powerful type, having navigated unassisted the whole way from Kiel to Constantinople, and she is believed to have sunk the Triumph and Majestic. The German submarines approaching completion in 1914 had displacements severally of 750 tons (submerged) and 900 tons (surface), corresponding to speeds of 10 and 18 or more knots, and the size has probably now been doubled, and the range extended to 4000 miles. Some of the submarines are believed to be intended to work with the fleet, and may, like the boats to be built in the United States for that purpose, have a surface speed of 25 knots.

The following are successive types of German submarines, but the details are given with some reserve:—

Numbers.	Date.	Displacement (Tons).		Speed (Knots).		Tubes.	Guns.
		Surface.	Submerged.	Surface.	Submerged.		
U 1-2	1907	195	230	10	7	1	—
U 3-8	1908-10	250	300	12	8	2	—
U 9-16	1912	400	500	13	8	3	2 1-pr. 1 14-pr.
U 17-24	1912-13	650	750	14	8	4	2 1-pr. 1 14-pr.
U 25-30	1914	750	900	18	10	4	2 1-pr.
U 31-39	1915	950	1,200	20	10	6	2 1-pr. 2 14-pr.

Greece.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Coal Capacity.
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots				Tons.
Naukratoussa Thyella Sphendoni Lonchi	Yarrow	1906	220	20·6	7·2	2	350		32·1 31·79 31·84 32·53	2 12, 4 6-pr.	2	58	80
Nike Aspis Doxa Velos	Stettin (Vulcan)	1906	220	20·6	7·2	2	350	..	30	2 12, 4 6-pr.	2	58	80
Aetos, Leon, Pardalos, Jerex	Birkenhead	1911	285	29·9	9·6	..	980	19,750	32	4 4-in.	4	110	225
Keravnos Neagenea	Stettin	1911	..	..	..	..	750	..	32·5	4 3·4-in.	2	..	..
SUBMARINES—													
Delphin, Xiphias	Chalon sur Saône	1911-12	164	..	..	..	300-460	..	14·9	..	5	..	..

Six 125-ton torpedo-boats built by the Vulcan Co. at Stettin; Arethusa, Doris, Aigli, Dafni, Alcyon, Thetis.
Two Laubeuf type submarines were building at the Schneider works, Le Creusot.

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Italy.

Name or Number.	Where Built	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Destroyers—													
Fulmine	Sestri (Odero)	1898	200	20·4	5·4	2	298	4,800	28	5 6-pr. Q.F.	2	43	60
Lampo, Freccia, Dardo, Strale, Euro, Ostro, Nembo, *Turbine* (1)	Elbing (Schichau)	1899, 1901	196·8	21·3	5·8	2	320	6,000	30	1 14-pr. Q.F., 5 6-pr.	2	53	60
Aquilone, Borea, Meteoro, Tuono	Naples (Pattison)	1901, 1902	210	19·4	7 6	2	330	6,000	30	5 6-pr. Q.F.	2	53	60
Zeffiro, Espero	Naples (Pattison)	1904	210	19·4	7·6	2	330	6,000	30	5 6-pr. Q.F.	2	53	60
Bersagliere, Artigliere, Granatiere, Lanciere, Alpino, Corazziere, Pontiere, Carabinieri, Fucilieri, Garabaldino	Genoa (Ansaldo)	1906, 1907, 1909, 1910	211·6	20·0	7·6	3	365	6,000	30	4 14-pdr.	3	55	82
Impavido, Impetuoso, Indomito, Insidioso, Intrepido, Irriquieto	Naples (Pattison)	1912 & 1913	246	24·6	7·6	..	650	15,000	35·2	1 4·7 in., 4 14-pr.	2	..	100
Ardito, Ardente, Audace, Animoso	Orlando (Leghorn)	1912 & 1913	246	24·6	7·6	..	650	15,000	35·5	1 4·7 in., 4 14-pr.	2	..	..
Ascaro	Ansaldo ..	1912	211·5	20·0	6·6	..	380	6,000	29	2 14-pr., 4 6-pr.	3	..	80
Francesco Nullo, Antonio Mosto, Guiseppe Sirtori, Giacinto Carini, Rosolino Pilo, Guiseppe Abba, Simone Schiaffino, Pilade Bronzetti, Guiseppe Missori, Ippolito Nievo	Naples (Pattison), Genoa (Odero)	1913 & 1914	246	24·6	7·6	..	669	18,000	35	1 4·7-in., 4 14-pr.	2	..	..
First Class—													
Pellicano	Sestri (Odero)	1899	157·4	19	14·8	2	147	2,700	25	2 3-pr.	2	28	24
Condore	Sestri (Ansaldo)	1898	154·3	16·8	6·9	2	136	2,500	27	2 3-pr.	2	27	16
Sirio, Sagittario, Spica, Scorpione, Serpente, Saffo	Elbing	1905–6, 1905 6, 1905–6											
Alcione, Ardea, Albatros, Alcorone, Astore, Arpia	Odero	1905, 1906	164	19·6	6 3	2	215	2,900, 3,250	25	2 3-pr.	2	..	40
Orione, Orsa, Olympia, Orfeo	Genoa (Ansaldo)	1905, 1906											
Gabbiano	Spezia	1907											
Pegaso	Naples (Pattison)	1905											
Perseo		1905											
Procione, Pallade, Cigno		1905											
Cassiopea, Calliope, Clio, Centauro, Canopo	Naples (Pattison)	1906, 1907, 1906, 1907, 1907	164	17·4	7·0	2	200	3,000	25·4, 26·6	3 3-pr.	3		40
Calipso, Climene	Naples (Pattison)	1909, 1909											
1 P.N.–12 P.N.	Pattison	1912 & 1913	139	13·9	..	..	130	2,500	27	1 6-pr.	2	..	..
13 O.S.–24 O.S.	Odero												
25 A.S.–32 A.S.	Ansaldo ..												
33 P.N.–38 P.N.	Pattison ..												
39 R.M. 40 R.M.	Spezia	1914											

Three large destroyers, Allessandro Poerio, Cesare Rossarol, and Guglielmo Pepe, 1000 tons, 32 knots, were being built by Ansaldo at Sestri Ponente under the supplementary credits of 1913. Four powerful flotilla leaders and mine-layers are building. See the cruiser list. Also Arno, 600 tons, 30 knots (built for Portugal), and four of 1450 tons, 35 knots, three 4·7-in., seven 12-pr. (for Roumania), and taken over.

(1) Sunk off Barletta, May 24, 1915.

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Italy—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
SUBMARINES—													
Delfino	Spezia	1894	78·6	10·1	..	1	111	150	10–12	..	2	12	..
Glauco, Squalo, Narvalo, Otaria, Tricheco	Venice, &c.	1906 / 1907 / 1909	120	14·3	..	..	180 / 230	..	15	..	2	..	..
Foca, ***Medusa*** (1), Velella, Argo, Jalea Fantina, Salpa .. Fisalia, Zoea	Muggiano F.I.A.T. S. Giorgio	1908 to 1913	148	13·9	..	..	225 / 320	750	14·6 / 8·5	..	2	..	..
Nautilus, Nereide ..	Venice ..	Bldg.	134·6	14·2	..	..	221 / 297	600	19–5	..	3	..	..
G. Pullino, G. Ferraris	Spezia ..	1912	134·6	14·9	..	..	345 / 400	1200	15–9	..	4	17	..
Atropo	Kiel (Germania)	1912	146	14·6	..	..	330	700 / 400	12¼ / 8¼	..	2	..	..

(1) Medusa sunk by Austrian submarine, June, 1915.

The following large submarines (700-1000 tons) are being built: Galvani, Torricelli, Pietro Micca (Spezia); Lazzaro Mocenigo, Lorenzo Marcello, Angelo Zeno (Venice); Alberto Guglielmotti, Antonio Pacinotti (F.I.A.T., Spezia).

Also coastal submarines Agostino Barbarigo, Andrea Provana, Sebastiano Veniero, Giacomo Nani (F.I.A.T.), 600 tons submerged.

Japan.

Name or Number.	Where Built.	Launched.	Dimensions Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Murakumo	Thornycroft	1898											
Shinonome	Thornycroft	1898											
Yugiri	Thornycroft	1898	210·0	19·5	7·2	2	307	5,800	30 to 31	1 12-pr., 5 6-prs.	2	54	80
Shiranui	Thornycroft	1899											
Kagerou	Thornycroft	1899											
Usugumo	Thornycroft	1900											
Shirakumo	Thornycroft	1901	216·7	20·7	8·3	2	373	7,400	31	1 12-pr., 5 6-prs.	2	59	96
Asashio	Thornycroft	1902											
Akebono	Yarrow ..	1899	220·0	20·6	9·6	2	311	6,000	31	1 12-pr., 5 6-prs.	2	55	95
Sazanami	Yarrow ..	1899											
Oboro	Yarrow ..	1899	220·3	20·6	9·6	2	311	6,000	31·62	1 12-pr., 5 6-prs.	2	..	90
Niji	Yarrow ..	1899	220·3	20.6	9·6	2	308	6,000	31·15	1 12-pr., 5 6-prs.	2	..	90
Kasumi	Yarrow ..	1902	220·3	20·6	9·6	2	335	6,000	31	1 12-pr., 5 6-prs.	2	..	..
Asagiri	Yokosuka ..	1902	220·3	20·6	9·6	2	374	6,000	29	1 12-pr., 5 6-prs.	2	..	..
Murasame	Yokosuka ..	1902											
Yamahiko	Port Arthur	1903											
Fumizuki	Port Arthur	1903	196·9	18·4	11·5	2	250	6,000	27	1 12-pr., 5 3-prs.	2	..	80
Satsuki	Petrograd ..	1902											
Hatsushima	Yokosuka ..	1905											
Yayoi	Yokosuka ..	1905											
Kisaragi	Yokosuka ..	1905											
Hibiki	Yokosuka ..	1906											
Wakaba	Yokosuka ..	1905											
Hatsuyuki	Yokosuka ..	1906											
Kamikaze	Yokosuka ..	1905											
Ariake	Yokosuka ..	1905											
Fubuki	Yokosuka ..	1905											
Arare	Yokosuka ..	1905											
Yunagi	Maizuru ..	1906											
Oite	Maizuru ..	1905											
Asakase	Kobe	1905	220·3	20·6	9·6	2	374	6,000	29	6 12-pr.	2	..	..
Harukase	Kobe	1905											
Shigure	Kobe	1906											
Hatsuharu	Kobe	1906											
Yuguri	Sasebo	1905											
Yudachi	Sasebo	1906											
Mikadzuki	Sasebo	1906											
Nowake	Sasebo	1906											
Uschio	Kure	1905											
Nenohi	Kure	1905											
Shiratsuyu	Nagasaki ..	1906											
Shirayuki	Nagasaki ..	1906											

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Japan—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet	Feet.	Feet		Tons.		Knots.				Tons.
DESTROYERS—*contd.*													
Matsukase	Nagasaki	1906											
Asatsuyu	Osaka	1907											
Hayakase	Osaka	1906											
Kikutsuki	Uraga	Bldg.											
Minatsuki	Uraga	Bldg.	220·3	20·6	9·6	2	374	6,000	29	6 12-prs.	2	70	90
Nagatsuki	Uraga	1907											
Utsuki	Uraga	1907											
Isonami	Yokosuka	1909											
Uranami	Yokosuka	1909											
Ajanami	Yokosuka	1909											
Kaifu	Maizuru	1909											
Umikaze	Nagasaki	1910	..	..	..	..	1200	20,500	35	2 4·7-in., 5 3-in.	3	123	..
Yamakase	..	1911											
Sakura	Kure	1912	..	..	..	..	600	18,000	33	1 4·7-in., 1 12-pr.	4	..	..
Tashibana	Kure	1912											
FIRST CLASS—													
Hayabusa	Normand	1898											
Kasasagi	Normand	1899	147·7	16·0	8·2	2	150	4,200	30	1 6-pr., 2 3-prs.	3	26	30
Manadzuru	Normand	1899											
Chidori	Normand	1900											
Shirataka	Elbing	1899											
Aoataka	Kure	1903											
Hato	Kure	1903											
Hibari	Kure	1903											
Kari	Kure	1903											
Kiji	Kure	1903											
Tsubame	Kure	1903	147·7	16·0	8·2	2	150	4,200	27	1 6-pr., 2 3-prs.	3	26	30
Hashitaka	Kawasaki	1902											
Kamone	Kure	1904											
Otori	Kawasaki	1904											
Sagi	Kure	1902											
Uzuri	Kure	1902											
SECOND CLASS—													
2 boats	Kobe	1901	..	..	..	..	83	..	..	..	..	..	..
10 boats	Yarrow	1900	152·6	15·3	7·9	..	..	1,900	27	2 3-prs	3	..	36
16 boats	Elbing	1891–9	..	..	..	..	..	..	..	..	..	..	..
1 boat (No. 24)	Normand	1891	118	13·1	6·9	1	80	1,200	23	2 1-prs.	2	21	10
2 boats	Normand	1898	121·4	13·6	8·6	1	86	1,800	27	1 3-pr.	2	..	10
SUBMARINES—													
5 boats	Fore River, [U.S.A.	1904–5	65	12	..	..	120	..	9¼–9	..	1	..	..
2 boats	Japan	1906	..	..	..	..	60·80	..	9·7	..	1	..	..
2 boats	Vickers	1908	135	13·5	..	..	325	..	14	..	2	..	..
4 boats	Kawasaki	1911 & 1914	..	..	..	..	..	..	..	..	..	..	..

Provision was made for the building of six destroyers, 1200 tons, of which two, Urakasa (launched 1915) and Kawakaza, to be built in England, and Amatsukaze, Tokitsukase, Isokase, Hamakase, were launched at Kure in 1915 (Umikaze class). Destroyers Kaba, Kaede, Kashiwa, Katsura, Kiri, Kusu, Matsu, Shakaki, Sugi, Ume (1913 programme), Momo, Yanagi, Kashi, Hinoki (1914) built in Japan (Sakura class, 600 tons). Two 750-ton submarines were to be completed in 1916.

Portugal.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Tejo	Lisbon	1901	..	..	..	..	520	7000	25·5	1 4-in., 5 M.	2	..	..
Douro	Lisbon	1913											
Guadiana	Lisbon	1914	240	23·6	7·9	3	700	11,000	29	1 4-in., 2 12-pr.	2	..	..
Vouga	Lisbon	1915											
Tamega	Lisbon	1915											

There are four obsolete torpedo-boats and three have been built in France. Submarine Espadarte, 245-300 tons, 13 knots, built at the F.I.A.T.-San Giorgio Yard, Muggiano; three others (Laurenti type) were to be built.

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Netherlands.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Wolf, Fret (1909) .. Bulhond, Jakhals (1910) Hermelyn, Lynx, Panter, Vos (1911)	Flushing ..	1910–1913	230	20·6	9	2	480	7,500	30	4 12-pr., 4 M.	2	84	80
FIRST CLASS—													
Hydra	Yarrow ..	1900	130	13·6	6·0	1	77	1,200	24·4	2 1-prs.	3	18	20
Ophir	Yarrow ..	1901	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Pangrango	Yarrow ..	1901	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Rindjani	Yarrow ..	1901	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Smeroe	Fijenoord ..	1904	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Tangka	Fijenoord ..	1904	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Wajang	Fijenoord ..	1904	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Minotaurus, Python	Flushing ..	1904	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Zeeslang .. .. .. Krokodil .. .. .. Draak .. .. .. Sfinx .. .. .. Scylla	Flushing ..	1905	152·6	15·3	7·9	1	130	1,900	27	2 3-prs.	2	25	36
Meijndert Jentjes .. Johan van Brakel .. Van de Rijn .. .. Willem Willemsz ..	Flushing, Rotterdam, & Fijenoord	1904	154·3	16·5	7·9	1	144	2,000	25	2 3-prs.	3	24	40
Roemer Vlacq .. Pieter Constant .. Jacob Cleydijk .. Janssen de Haan .. G 9–12	Do. ..	1906	154·3	16·5	7·9	..	144	2,000	26	2 3-prs.	3	24	40
G 13–16	Scheldt .. Fijenoord ..	1914 Bldg.	165	17·3	9·5	..	188	2,000	26	2 12-pr.	3dbl	..	..
G 21–8	Do.	Pro.	197	20	9·7	2	310	5,500	27	2 12-pr.	4dbl	..	60

The Yarrow destroyers have Yarrow water-tube boilers, and the later ones are fitted for the consumption of oil fuel. Four t.b.s. of 350 tons (G 17–20), which were building at Stettin, have been taken over for the German Navy.

Submarine boat, No. 1 (120 tons). Nos. 2 and 3, 132–150 tons, 11–8 knots, 2 tubes. Nos. 4 and 5 380 tons, 151 ft. 6 in. long, 16 knots (surface), 11 knots (submerged) speed. Nos. 6 and 7 building in Holland. K 1 for the East Indies, 320–390 tons, 105 ft. long, 10 ft. beam, 300 h.p. (Diesel), and 300 h.p. (electric), 16 knots (surface), 11 knots (submerged speed), 2 tubes, K 2 and K 3, of the same class, are being built for the Dutch Indies. Eight 200-ton boats for home service were to be built. Three large submarines are in hand at the Fijenoord dockyard (1916).

Norway.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Valkyrien	Elbing ..	1896	190	24·3	9·3	1	374	3,300	23·2	2 12-pdrs. 4 1-pdrs.	2	59	90
Draug .. .. .. Troll. .. .. Garm .. .. .. No. 5..	Christiania.. Christiania.. Christiania.. Christiania..	1908 1909 1913 Pro.	226	25·0	..	2	550	7,500	27·0	6 12-pdrs.	3	71	95
FIRST CLASS—													
Varg (8), Raket (9)	Christiania..	1894	111·5	12·4	..	1	43	..	..	..	2	..	..
Hval, Delfin, Hai (3 boats)	Elbing ..	1896	128·0	15·0	6·9	1	84	1,100	24·5	2 1·4-in. Q.F.	2	..	..
Storm, Brand, Trods	Christiania ..	1899	128·0	15·0	..	1	84	1,100	23	2 1·4-in. Q.F.	2		
Laks, Sild, Sael, Skrei	Christiania..	1900	128·0	15 0	6·9	1	84	11,000	23	2 1·4-in.	2	..	..
Kjeck, Hvas, Dristig Kvik, Djerv, Blink, Glint, Hauk, Falk	Christiania..	1898 1903	111·5	14·5	6·3	1	65	650	19	2 1·4-in.	2	..	..
Skarv, Teist, Lom, Jo, Grib	Christiania..	1906–7	134·5	14·9	..	1	100	1,700	25·0	2 3-pr.	..	..	..
Ravn, Orn	Christiania..	1903	119	14·9	6·4	1	73	1,035	22·5	2 1·4-in.	2	14	13
SUBMARINES—													
A 1, 2, 3, 4, 5.. ..	Germania Kiel	1909 to 1913	131·6	14·9	9·6	2	220 255	440 250	12 9	..	3	17	..

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Roumania.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.		Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.					Tons.
FIRST CLASS—														
Naluka	Havre	1888	120·7	11·3	6·9	1	56	578	21	1 1-pr.	rev.	2	..	12
Sborul	Havre	1888	120·7	11·3	6·9	1	56	578	21	1 1-pr.	rev.	2	..	12
Smeul	Havre	1888	120·7	11·3	6·9	1	56	578	21	1 1-pr.	rev.	2	..	12

8 100 ft. Torpedo Vedette Boats built by the Thames Iron Works. 4 built by Schichau, 1904, Vedea, Argosul, Trotosul, Teleorman, for the Danube.

Russia.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.		Torpedo Tubes.	Complement.	Fuel Capacity.
BALTIC.														
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.					Tons.
Kondratenko, Okhotnik, Pogranitschnik, Siberskij-Strelok ..	Abo and Helsingfors	1905	250·3	27·0	8·9	2	625	7,300	25–26	2 12-pdrs. 6 6-pdrs.		3	100	191
Amuretz, Gaidamak, Ussurietz, Vsadnik .	Kiel (Germania)	1905 1906	232·9	23·7	7·9	2	560	6,500	25–26	2 12-prs. 6 6-prs.		3	98	180
Emir Bukharsky, Dobrovoletz Finn, Moskvityanin.. ..	Helsingfors	1905	238	27·0	6·6	2	580	6,500	25–26	2 12-pdrs. 6 6-pdrs.		3	98	134
Donskoi - Kasak, Kasanetz, Sabaikaletz, Steregushtshi, Strashny, Trukhmenetz - Stavropolski, Ukraina, Voiskovoi	Riga	1904 1906	239·9	23·7	7·6	2	508	6,200 7,020	25–27	2 12-pdrs. 4 6-pdrs.		2	90	50 120
Prytki	Poplar.. ..	1895	190	18·6	7·0	2	240	4,400	29.7	1 12-pr, 3 3-pr		2	..	..
Revy, Retivy, Ryany, Rezviyi, Prosorlivy, Ridny, Posluchny, Protchny, Poratsuchtchi, Podvitsny ..	Abo, Ishora & Nevsky ..	1898	196·9	18·4	11·5	2	240	3,800	27	1 12-pr, 3 3-pr		2	55	53
Bravi, Vidny, Bodry	Nevsky and Ishora ..	1900–2	196 9	18·4	11·5	2	350	6,000	27	1 12-pr, 5 3-pr		3	62	80
Grozni, Grosiashtchi	Petrograd ..	1904	196·9	18·4	11·5	2	350	6,000	27	1 12-pr, 5 3-pr		3	62	80
Tverdy, Totschny, Trevozhny	Abo	1905	196·9	18·4	11·5	2	240	6,000	27	1 12-pr, 5 3-pr		3	62	80
Iskousny, Ispolnitelni, Kriepky, Legky	La Seyne ..	1905	185·9	21·0	7·5	2	324	5,600	26	1 12-pr, 5 3-pr 2 M		2	60	30 100
Lovki, Letutshi, Lichoi	Havre (Normand)	1905	185·8	21·0	7·5	2	324	5,600	27·5	1 12-pr, 5 3-pr 2 M		2	60	30 100
Boievoi, Pditelny, Burni, Vnimatelni, Vnushitelni, Vynoslivny, Sergieff, Yurasovsky, Svierefi, Dmitrieff	Elbing Schichau	1905–6	208·9	23·0		2	365	6,500	28			3		95
Silni, Storoshevoi, Stroiny, Rasyashtshy, Rastoropny, Burakoff, Dyelni, Dostoiny, Deyatelni, Myetky, Molodetsky, Moshtshny, Malieleff, Anastosoff	Petrograd and Ochta	1905 1907	185·9	21·0	7·5	2	335 to	5,600	26	1 12-pr, 5 3-pr 2 M		2	60	30 100
Novik	Stettin (Vulcan)	1911	336·6	31·3	8·7	..	1200	36,000	37·3	4 4-in., 2 M.		4 dbl.	..	..
Leit. Ilin, Kapt. Konon Zotov, Kapt. Kingsbergen, Kapt. Kroun, Kapt. Belli, Kapt. Izuilmetev, Kapt. Kern, Leit. Dubasov	Petrograd (Putiloff)	1914 & Bldg.	..	..	..	..	1200–1300	30,000	36	3 4-in, 4 M.		5 dbl.	..	..

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Russia—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes	Complement.	Fuel Capacity
BALTIC.													
DESTROYERS—*contd.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Orphei, Grom, Zabiaka, Pobieditel, Letun, Desna, Samson, Azard	Petrograd (Metal Works)	1914, 1915, & Bldg.	..	..	..	..	1200–1300	30,000	36	3 4-in., 4 M.	5 dbl.	..	..
Gavrul, Mikhail, Vladimir, Konstantin, Sokol, Leit. Lombard	Reval (Parviainin Works)												
Gromonosetz, Avtroil, Bryachislav, Fiodor-Stratilat, Pryamislav	Reval Shipbldg. Works												
Hogland, Grenhamn, Stirsuden, Patras, Khios, Tenedos, Ruimnik, Smolensk, Kulm	Riga (Ziese Yard)												
SUBMARINES—													
Delfin	Petrograd ..	1903	65	12	..	..	115–150	..	6	..	3	..	..
Graf Sheremetieff, Kassatka, Nalim	Petrograd ..	1904	65	12	..	..	150–200	100-60	8-6	..	4	..	..
Skat													
Som, Shtshuka ..	Petrograd ..	1904	65	12	..	..	120	160	9·5–7	..	2	..	..
Assiotr, Kefal.. ..	Petrograd ..	1905	70	13	..	..	135–175	400	10–7	..	3	..	..
Bialuga, Pescar, Sterliad	Petrograd ..	1904	66	13	..	..	120	160	9–7	..	2	..	..
Sig	Petrograd ..	1904	66	13	..	..	135–175	..	10–7	..	3	..	..
Makrel, Okun.. ..	Petrograd ..	1907 1908	110	..	..	..	150–200	100-60	8-6	..	6	..	..
Potschovy													
Alligator, Drakon, Kaiman, Krokodil..	Petrograd ..	19 8	132	14·2	..	..	450–500	..	12-10	..	2	..	..
Akula	Petrograd ..	1908	183·9	..	..	..	370	..	13	..	4	..	..
Minoga	Petrograd ..	1908	117	..	..	..	126	..	..	..	2	..	..
BLACK SEA.													
DESTROYERS—													
Baranoff, Shestakoff, Saken, Sazarenny	Nicolaieff ..	1907–8	241·6	27·0	7·9	2	614	6,500	25	6 12-pdrs.	3	90	200
Zavidni, Zavetni, Zharki, Zhutki, Zhivoi, Zhivulka, Zhivutshtshy ..	Nicolaieff ..	1903-4	210	21·2	7	2	350	5,500	27	1 12-pr, 5 3-pr	2	..	..
Stremitelini, Strogi, Smetlivy, Svirepy	Abo	1901	190·4	18·5	11·5	2	240	3,800	27	1 12-pr, 3 3-pr	2	..	60
Pushtin (1), Zorki, Zvonki	Nicolaieff ..	1903	210	21·2	7	2	350	5,500	27	1 12-pr, 5 3-pr	2	..	..
Bespokoiny .. .. Bystry, Dersky, Gnievny, Gromky Pospieschny, Pronsitelny, Pilky, Stshastlivy	Nicolaieff .. Nevsky, Putiloff, &c.	1912 & 1914	..	..	..	..	1,050	25,000	34	3 4-in., 2 M.	5 dbl.	93	..
SUBMARINES—													
Lossos, Shudok .	Nikolaieff ..	1907	66	13	..	..	120	..	9–7	..	2	..	..
Karp, Karas	Germania ..	1907	130	..	..	..	200–240	600	12-10	..	1	..	..
Morsh, Nerpa, Tiulen	Nikolaieff ..	1913	166·6	17·6	..	..	460–600	1200–800	15–11·5	..	9	..	..
Kashalot, Kit, Narval	Petrograd ..	1915	..	..	..	..	..	..	..	..	..	..	..
Krab (mine-layer)..	Nicolaieff ..	1912	171	..	..	..	500–700	..	..	..	2	..	..
FAR EAST.													
DESTROYERS—													
Bespochtchadni, Bestrachni, Beschumni (3 boats)	Elbing ..	1899	196·9	18·4	11·5	1	350	6,000	27	1 12-pr, 5 3-pr	2	..	..
Grozovoi, Vlastni ..	Havre (F. & C.)	1900–2	186·0	20·8	10·3	2	300	5,000	28	1 12-pr, 5 3-pr	2	..	80
Boiki	Nevsky ..	1900	196·9	18·4	11·5	1	350	6,000	28	1 12-pr, 5 3-pr			

(1) Leitenant Pushtin, destroyed by enemy submarine near Varna, March, 1916.

Under the shipbuilding programme of 1914 the Russian Shipbuilding Co. had eight destroyers in hand at Nikolaieff. Twelve submarines were in hand for the Baltic—8 at Messrs. Nobel & Lessner's, and 4 at the Baltic Yard—600 tons, 2000 h.p., named as follows: Lvitza, Kuguar, Leopard, Pantera, Ruis, Tigr, Tur, Yaguar, Bars, Vepr, Volk and Gepard. Six others were being built at the Baltic yard and Reval yard for the Far East. In 1914 six submarines were provided for, to be located in the Black Sea. Eight destroyers, built and building in the Black Sea.

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Spain.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Terror	Clydebank ..	1896	220	22	5·6	2	300	6,000	28	2 12-pr. 2 6-pr. 21-pr.	2	67	100
Audaz													
Osado	Clydebank ..	1897	225	25·6	5·8	2	400	7,500	30	2 14-pr. 2 6-pr. 21-pr.	2	70	90
Proserpina													
Bustamente	Cartagena ..	1915	220	22	7·5	..	370	6,250*	28	5 6-pr.	2	..	..
Villamil	Cartagena ..												
Cadarso	Cartagena ..												
FIRST CLASS—													
24 boats	Cartagena ..	1915 & Pro.	164	17·2	4·9	3	183	3,750*	26	3 3-pr.	3	..	..
Azor	Poplar.. ..	1887	134·5	14	6	1	108	1,600	24	4 3-pr.	3	23	25
Halcón	Poplar.. ..	1887	134·5	14	..	1	108	1,600	24	4 3-pr.	3	23	25

Azor and Halcón re-boilered by Yarrow (water-tube). * Parsons' turbines and Normand type boilers.

Six additional destroyers in hand. In the 1914 programme are twenty-eight submarines, of which four were to be built in the United States.

Sweden.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Capacity.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
Mode	Yarrow .	1902	220·3	20·6	8·9	2	400	6,800	32·4	1 12-pr. 5 6-prs.	2	55	95
Magne	Thornycroft	1905											
Wale..	Malmo ..	1906											
Ragnar	Malmo ..	1909											
Sigurd	Gothenburg	1909	216·9	20·8	8·2	2	430	7,200	30·0	2 12-prs. 4 6-prs.	2	63	90
Vidar	Malmo ..	1909											
Hugin	Gothenburg	1909											
Munin	Malmo ..	1910											
FIRST CLASS—													
Komet	Elbing ..	1896	128	15·9	6·11	1	92	1,056	23·0	2 1·9-in. Q.F.	2	16	17
Blixt..	Carlskrona..	1898	128	15·9	6·11	1	92	1,260	23·5	2 1·9-in. Q.F.	2	18	17
Meteor	Carlskrona..	1899	128	15·9	6·11	1	92	1,330	23·8	2 1·9-in. Q.F.	2	18	17
Stjerna	Carlskrona..	1899	128	15·9	6·11	1	92	1,250	23·4	2 1·9-in. Q.F.	2	18	17
Orkan	Carlskrona..	1900	128	15·9	6·11	1	92	1,250	23·5	2 1·5-in. Q.F.	2	18	17
Vind	Carlskrona..	1900	128	15·9	6·11	1	92	1,250	23·5	2 1·5-in. Q.F.	2	18	17
Bris	Carlskrona..	1900	128	15·9	6·11	1	92	1,250	23·5	2 1·5-in. Q.F.	2	18	17
Virgo	Carlskrona..	1902	128	15·9	6·11	1	92	1,250	23·5	2 1·5-in. Q.F.	2	18	17
Mira	Carlskrona..	1902	128	15·9	6·11	1	92	1,250	23·5	2 1·5-in. Q.F.	2	18	17
Orion	Carlskrona..	1903	128	15·9	6·11	1	92	1,250	23·5	2 1·5-in. Q.F.	2	18	17
Sirius													
Kapella													
Pleiad, Castor, Pollux	Normand ..	1909	125	15	6·6	1	96	1,900	26	2 1·5-in. Q.F.	2	18	20
Vega	Carlskrona..	1910	125	17·5	8·6	1	105	1,900	25	1 6-pr. 1 1·4-in.	2	18	20
Vesta													
Spica, Astrea, Iris, Thetis	Bergsund and Gothenburg	1910	125	17·5	8·6	1	105	1,900	25	1 6-pr. 1 1·4-in.	2	18	20
Altair	Stockholm ..	1908	128	17·5	8·6	..	110	2,000	25	2 6-prs.	2	18	20
Antares													
Argo													
Arcturus													
Perseus, Polaris ..	Bergsund ..	1910–1915	128	17·5	8 6	1	110	2,000	25	12 6-pr.	2	18	20
Regulus, Rigel ..	Stockholm ..												
A, B, C, D	Carlskrona & Gothenburg												
SUBMARINES—													
Enroth	Stockholm ..	1902	82·0	13·0	11·6	2	146	100	12–11	..	1	..	..
Hajen	Stockholm ..	1903	65·0	11·6	..	..	120	200	10–7	..	..	..	..
No. 1..	Muggiano ..	1908	139·6	14·2	6·9	..	185–235	750	15–7¼	..	2	15	..
Nos. 2, 3, 4	Stockholm ..	1911	136·6	14·2	6 9	..	185-535	750	15–7¼	..	2	15	...
Svaerdfisken	Malmö . ..	..	..	..	..	..	250–370	..	..	..	2	..	..
Tumlaren . . .													

Also six small torpedo-boats, 49 tons, built 1892–1903. Submarine Delfin completed by the Bergsund firm, Aborren, Laxen and Gaeddan at Malmö, and two others at the latter place have been completed or are nearing completion.

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Turkey.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes	Complement.	Fuel Capacity.
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Berk-Efshan	Kiel	1894	187	21·6	..	2	270	1,200	25	6 1-pr. revs.	2	..	..
Tajjar	Kiel	1894	187	21.6	..	2	270	..	25	6 1-pr. revs.	2	..	..
Samsoun	Bordeaux ..	1907–8	184·9	19·6	9·6	2	280	..	28	1 9-pr. 6 3-pr.	2	..	26
Basra..													
Tassos													
Yar-Hissar (1) ..													
Jadighiar-i-Millet ..	Elbing (Schichau)	1903	236·6	25·6	12·3	2	610	14,000	35	2 3·4 in. 2 M.	3	..	160
Muavenet-i-Millet,..													
Mahabet-i-Watan ..													
Nuhum-i-Hamijet ..													
FIRST CLASS—													
Ac-Hisar	Sestri Ponente	1904	165·8	18·6	4·5	..	165	2,200	27				
Urffa, Tokat, Deradj, Kulabia, Mossul..	Sestri Ponente	1906	165·8	18·6	4·5	..	165	2,200	24				
SUBMARINE—													
Ahmed .. .. .. (ex-Turquoise)	Toulon ..	1908	146	12·9	12 0	2	390	600	12	..	6	..	..

(1) Yar-Hissar, torpedoed and sunk by a British submarine outside the Gulf of Ismid, December 3, 1915. Two officers and forty men rescued and put on board a sailing vessel. Before the war four 700-ton destroyers were building at Leghorn.

At the beginning of the war Turkey had no submarine boats, but a number of German submarines reached the Ægean and the neighbourhood of the Dardanelles. They were sighted off Malta and had a base near Smyrna. The British Legation at Athens offered a reward for information which would result in the capture or destruction of enemy submarines. The so-called Turkish submarines appear to be German craft, of which at least six reached the Golden Horn, but the Ahmed was a capture from the French. She was the Turquoise, which was sunk by gun-fire in the Sea of Marmora, November 3rd, but was refloated and taken to Constantinople.

United States.

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament. Guns.	Torpedo Tubes.	Complement.	Maximum Fuel Capacity.
DESTROYERS—			ft. in.	ft. in.	ft. in.		Tons.		Knots.				Tons.
Smith	Philadelphia	1909	289 0	26 0	8 0	3	700	10,362*	29·5 *t.*	5 3-in., 2 M.	3 18-in.	89	285
Lamson	Philadelphia	1909	289 0	26 0	8 0	3	700	10,000*	29·5			89	285
Preston	Camden, N.J.	1909	289 0	26 0	8 0	3	700	10,000*	28			89	270
Flusser	Bath, Me. ..	1909	289 0	26 0	8 0	3	700	11,842*	30·41 *t.*			89	295
Reid	Bath, Me. ..	1909	289 0	26 0	8 0	3	700	12,734*	31·82 *t.*			89	295
Paulding	Bath, Me. ..	1910	289 0	26 1¼	8 4	3	742	12,000*	29·50			89	210
Drayton	Bath, Me. ..	1910	289 0	26 1¼	8 4	3	742	12,000*	29·50			89	210
Roe	Newport News, Va.	1909	289 0	26 1¼	8 4	3	742	12,000*	29·50			89	210
Terry		1909	289 0	26 1¼	8 4	3	742	12,000*	29·50			89	210
Perkins	Quincy, Mass.	1910	289 0	26 1¼	8 4	2	742	12,000†	29·50			89	216
Sterrett	Quincy, Mass.	1910	289 0	26 1¼	8 4	2	742	12,000†	29·50			89	216
McCall	Camden, N.J.	1910	289 0	26 1¼	8 4	3	742	12,000*	33·0			89	210
Burrows	Camden, N.J.	1910	289 0	26 1¼	8 4	3	742	12,000*	29·50			89	210
Warrington ..	Philadelphia	1910	289 0	26 1¼	8 4	2	742	12,000‡	30			89	210
Mayrant	Philadelphia	1910	289 0	26 1¼	8 4	2	742	12,000‡	29·50			89	210
Monaghan ..	Newport News	1911	289 0	26 1¼	8 4	3	900	12,000*	30			89	210
Trippe	Bath, Me. ..	1911	289 0	26 1¼	8 4	3	900	12,000*	29·50			89	210
Walke	Quincy, Mass.	1911	289 0	26 1¼	8 4	2	900	12,000†	29·50			89	216
Ammen	Camden, N.J.	1911	289 0	26 1¼	8 4	3	900	12,000*	29·50			89	210
Patterson	Philadelphia	1910	289 0	26 1¼	8 4	3	900	12,000*	30			89	210
Bainbridge ..	Philadelphia	1901	245 0	23 7	6 6	2	420	8,000	28·45	2 14-pr., 5 6-pr..	2	64	139
Barry	Philadelphia	1902	245 0	23 7	6 6	2	420	8,000	28·13	2 14-pr., 5 6-pr.	2	64	139
Chauncey.. ..	Philadelphia	1901	245 0	23 7	6 6	2	420	8,000	28·61	2 14-pr., 5 6-pr.	2	64	139
Dale	Richmond ..	1900	245 0	23 7	6 6	2	420	8,000	28	2 14-pr., 5 6-pr.	2	64	139
Decatur	Richmond ..	1900	245 0	23 7	6 6	2	420	8,000	28·10	2 14-pr., 5 6-pr.	2	64	139
Hopkins	Wilmington	1902	244 0	24 6	6 0	2	408	8,456	29·02	2 14-pr., 5 6-pr	2	64	150
Hull	Wilmington	1902	244 0	24 6	6 0	2	408	9,119	28·04	2 14-pr., 5 6-pr.	2	64	150
Lawrence.. ..	Quincy, Mass.	1900	242 3	22 3	6 2	2	400	8,400	28·41	2 14-pr., 5 6-pr.	2	64	115
Macdonough ..	Quincy, Mass.	1901	242 3	22 3	6 2	2	400	8,400	28·03	2 14-pr., 5 6-pr.	2	64	115
Paul Jones ..	San Francisco	1900	245 0	23 7	6 6	2	420	8,000	28·91	2 14-pr., 5 6-pr.	2	64	139
Perry	San Francisco	1900	245 0	23 7	6 6	2	420	7,950	28·32	2 14-pr., 5 6-pr	2	64	139
Preble	San Francisco	1901	245 0	23 7	6 6	2	420	7,370	28·03	2 14-pr., 5 6-pr.	2	64	139
Stewart	Morris Heights	1902	245 0	23 7	6 6	2	420	8,000	29·69	2 14-pr., 5 6-pr.	2	64	139
Truxton	Baltimore ..	1901	248 0	23 3	6 0	2	433	8,300	29·58	2 14-pr., 5 6-pr.	2	64	232
Whipple	Baltimore ..	1901	248 0	23 3	6 0	2	433	8,300	28·24	2 14-pr., 5 6-pr.	2	64	232
Worden	Baltimore ..	1901	248 0	23 3	6 0	2	433	8,300	29·86	2 14-pr., 5 6-pr.	2	64	232

* Parsons turbines. † Curtis turbines. ‡ Zoelly turbines.

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United States—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length.	Beam.	Draught.	Number of Screws.	Displacement.	Indicated Horse-Power.	Maximum Trial Speed.	Armament. Guns.	Torpedo Tubes.	Complement.	Maximum Fuel Capacity.
DESTROYERS—*continued.*			ft. in.	ft. in.	ft. in.		Tons.		Knots.				Tons.
Beale, Fanning, Henley, Jarvis, Jouett	Quincy, Mass.	1911	289 0	26 1½	8 4	3	900	12,000*	30·3	5 3-in., 2 M.	3 18-in.	89	210
Aylwin	Philadelphia	1912											
Balch	Philadelphia	1912											
Benham	Philadelphia	1913	300 0	30 6	9 3	2	1010	16,000	29¼	4 4-in., 2 M.	3	98	300
Cassin	Philadelphia	1913											
Cummings	Bath	1914											
Downes	Bath	1914											
Duncan	New York	1913	300 0	30 6	9 3	2	1010	16,000	29·8 30·3	4 4-in., 2 M.	3	98	300
Parker	Quincy, Mass.	1913											
Cushing													
Ericsson													
McDougal	Philadelphia, Bath, Me., New York	1914 1915	310 0	30 6	9 3	2	1050	17,000	29 8 30·3	4 4-in., 2 M.	4 dble.	93	300
Nicholson													
O'Brien													
Winslow													
Tucker													
Porter													
Wadsworth	..	1915 & Bldg.	310 0	30 6	9 3	2	1050	17,000	29 8 30·3	4 4-in., 2 M.	4 dble.	98	300
Conyngham													
Jacob Jones													
Wainwright													
SEA-GOING—													
Bagley	Bath	1900	157 0	17 0	4 7	2	167	4,200	29·15	3 3-pr.	3	29	..
Bailey	Morris Heights	1899	205 0	19 0	6 0	2	235	5,600	30·20	4 6-pr.	2	..	20
Barney	Bath	1900	157 0	17 0	4 7	2	167	4,200	29·04	3 3-pr.	3	29	..
Biddle	Bath	1900	157 0	17 0	4 7	2	167	4,200	28·57	3 3-pr.	3	29	..
Blakely	Boston	1902	175 0	17 6	4 8	2	165	3,000	25·58	3 3-pr.	3	29	70
De Long	Boston	1901	175 0	17 6	4 8	2	165	3,000	25·52	3 3-pr.	3	29	70
Du Pont	Bristol, R.I.	1897	175 0	17 8	4 8	2	165	..	28·58	4 1-pr.	3	32	76
Shubrick	Richmond	1899	175 0	17 6	4 8	2	165	3,375	26·07	3 3-pr.	3	29	70
Tingey	Baltimore	1902	175 0	17 6	4 8	2	165	3,000	24·94	3 3-pr.	3	29	70
Dahlgren	Bath	1899	147 0	16 4	4 7	2	146	4,200	30	4 1-pr.	2	..	32
Farragut	San Francisco	1898	213 6	20 8	6 0	2	273	5,878	30·13	4 6-pr.	2	..	76
Fox	Portland, Ore.	1898	146 0	15 4	5 4	2	132	1,750	23·13	3 1-pr.	3	..	..
Goldsborough	Portland, Ore.	1902	194 8	20 5	5 0	2	247·5	6,000	27·40	4 6-pr.	2	..	131
Morris	Bristol, R.I.	1898	138 3	15 6	4 1	2	105	1,750	24	3 1-pr.	3	..	28
Somers	Schichau, Elbing	1898	149 3¾	17 5	..	2	145	1,900	17·5	..	..	..	..
Thornton	Richmond	1900	175 0	17 6	4 8	2	165	3,000	24·88	3 3-pr.	3	29	70
SUBMARINE—													
A2	Elizabethport	1902	63 4	11 9	..	1	120	160	7—8	..	1	7	..
A3	San Francisco	1902	63 4	11 9	..	1	120	160	7—8	..	1	7	..
A4	Elizabethport	1901	63 4	11 9	..	1	120	160	7—8	..	1	7	..
A5	San Francisco	1902	63 4	11 9	..	1	120	160	7—8	..	1	7	..
A6, A7	Elizabethport	1901	63 4	11 9	..	1	120	160	7—8	..	1	7	..
B1, 2, 3	Quincy, Mass.	1909	80 6	13 0	..	.	170	250	8½—10	..	..	19	..
C1-C5	Quincy, Mass.	1906-9	106 0	..	..	..	273	..	..	..	..	..	.
D1-D3	Quincy, Mass.	1909	..	..	..	..	278–340	500	..	..	2 3	10	..
E1, E2	Quincy, Mass.												
F1, F2	San Francisco												
F3, F4	Seattle	1912	160·0	13 0	..	2	325–400	800	9½—14	..	4 6	25	..
G1-G3	Newport News	1913											
G4	Philadelphia												
H1, 2, 3†	Quincy, Mass.	1914											
K1 to 8	Quincy, &c.	1915	165·0	15 6	..	2	500	2000	11–14	..	..	25	..
L 1-L11	Newport News	Bldg.	..	..	..	..	775	..	..	..	6	..	..
M 1-M 8	Quincy, Mass. & Navy Yard	1915 & Bldg.	185·0	..	..	..	740	..	..	1 12-pr.	4	..	..

* Parsons turbines. † Sub-surface destroyers.

Destroyers Shaw, Sampson, Rowan, Davis, Allen, Wilkes, provided for 1914, details as Cushing, Tucker and other recent boats. Six additional ordered 1915, Nos. 69 to 74.

Submarine F4 sunk with all on board, Honolulu, March 25, 1915, subsequently raised.

Seven N class and three E class submarines are in hand. Sixteen coastal submarines (450-500 tons) have been contracted for (1915); also two fleet submarines, for which a surface speed of 25 knots is intended—Electric Boat Co., Lake Co., California Shipbuilding Co., Portsmouth (N.H.) Navy Yard, Puget Sound Navy Yard.

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BRITISH AND FOREIGN AIRSHIPS.

Great Britain.

[This table is retained to show the situation at the outbreak of war. Much progress has been made since it was prepared.]

Name.	Make.	Date.	Displacement.	Length.	Diameter.	Motors.	Total H.P.	Fuel endurance at Full Speed	Speed, knots.	Speed, m.p.h.	Remarks.
			tons	ft.	ft.						
						RIGID AIRSHIP.					
No. 9	Vickers ..	1914	23	520	49	4 Maybach ..	720	24	44	50	Building. Experimental.
						OTHER AIRSHIPS.					
No. 12 ..	Armstrong	1914	15	?	?	4	320	?	40·8	46	Building, Forlanini design.
No. 11 ..	,,	1914	15	?	?	4	320	?	40·8	46	,, ,, ,,
No. 10 ..	,,	1914	15	?	?	4	320	?	40·8	46	,, ,, ,,
No. 8 ..	Astra ..	1914	12	?	?	2 Chenu.. ..	500	20	44	50	Building, Torres design.
No. 7 ..	Vickers ..	1914	10	280	49·5	2 Maybach ..	360	20	41·4	47	Building, Parseval design.
No. 6 ..	,, ..	1914	10	280	49·5	2 ,, ..	360	20	41·4	47	,, ,, ,,
No. 5 ..	,, ..	1914	10	280	49·5	2 ,, ..	360	20	41·4	47	,, ,, ,,
No. 4 ..	,, ..	1913	10	270	50	2 ,, ..	360	20	37	42	Parseval design.
No. 3 ..	Astra ..	1913	8	260	50	2 Chenu.. ..	400	10	44·9	51·1	Torres design.
No. 2 ..	Willows ..	1912	1	100	26	1 Renault ..	40	10	30·8	35	Reconstructed. Training purposes only.
Eta	R.A.F. ..	1913	3·5	160	34	2 Canton-Anne	180	12	39·6	45	
Delta	R.A.F. ..	1912	5·3	180	43	2 White and Poppe.. ..	180	10	38·7	44	
Gamma ..	R.A.F. ..	1910	3·4	152	35	2 de Haviland	60	16	25·8	27	Training purposes only.
Beta	R.A.F. ..	1909	1·2	104	27	1 Clerget ..	50	8	32·5	37	Reconstructed. Training purposes only.

Germany.

At the outbreak of war Germany had nine Zeppelins available for warfare. Seven of them (numbered Z 2 to Z 8) belonged to the army; two were in commission in the navy (the new L 3, just completed, and the L 5, which had been the Sachsen of the Aerial Transit Company, and was purchased by the navy in order to replace the ill-fated L 2). The passenger airships, Hansa and the Viktoria-Luise, were practically obsolete, and if the inefficient Z 2 and Z 3 be omitted, there remained four launched or remodelled in 1913 (Z 4, Z 5, Z 6, and L 5), and three of the then latest type (Z 7, Z 8, and L 3).

The Friedrichshafen factory on Lake Constance was credited with having completed up to month of April, 1915, one airship every three weeks; and the new Potsdam factory was supposed to turn out one airship every four or five weeks. Since then the working capacity of the Friedrichshafen factory has been increased to such extent that now one airship is reported to leave the yard every fortnight. This output would give, April 1, 1916, a total of about sixty Zeppelins launched after the outbreak of the great war, which, added to the then existing nine ships, would give a gross total of nearly seventy.

Official information from Germany admits the loss of at least a dozen Zeppelins, but there is well substantiated reason to believe that about thirty airships of this pattern have met their doom during the war, or have become obsolete or useless. The number of Zeppelins remaining in commission on April 1st should, therefore, not exceed forty for all purposes and all fronts, no allowance being made for ships temporarily disabled.

The following are the types of successive Zeppelins:—

	Capacity. Cubic feet.	Length. Feet.	Diameter. Ft.	Diameter. In.
1912	688,000	453	48	8
1913	775,000	512	48	8
1914	953,000	518	54	6
1915	1,060,000	524	58	0

The Zeppelin brought down at Révigny on February 21st was of the latest type. A description will be found in a footnote on page 95. The engines have risen from 450 to about 1000 horse-power. They are all of the Maybach type.

Nothing is known of the Parseval, Gross and other airships now possessed by Germany. Before the war the army had about a dozen semi-rigids.

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Austria-Hungary.

Name.	Make.	Date.	Displacement.	Length.	Diameter.	Motors.	Total H.P.	Fuel endurance at Full Speed.	Speed, knots.	Speed, m.p.h.	Remarks.
			tons.	ft.	ft.						
					NON-RIGID AIRSHIPS.						
M 3	Körting ..	1910	3·6	213	35	2 Körting ..	150	..	..	30	Army.
M 2	Lebaudy ..	1910	..	230	33	1 Daimler ..	100	..	..	23	Army.
M 1	..	1909	..	164	28	1 Daimler ..	70	..	..	27	Army.
					2 privately owned.						

There is reason to believe that Austria now possesses one or more Zeppelins, of which six were to be purchased.

Italy

Name.	Make.	Date.	Displacement.	Length.	Diam.	Motors.	Total H.P.	Fuel endurance at Full Speed.	Speed, knots.	Speed, m.p.h.	Remarks.
			tons.	ft.	ft.						
					RIGID AIRSHIPS.						
3 of 32 tons were projected.											
					OTHER AIRSHIPS.						
M 4	..	1914	12	275	56	3 Maybach ..	540	20	38·7	44	Navy.
M 3	..	1913	12	275	56	3 Maybach .	540	20	38·7	44	Navy.
M 2	..	1912	12	275	56	4 Wolseley ..	600	20	38·7	44	Army.
M 1	..	1912	12	275	56	2 F.I.A.T. ..	500	20	38·7	44	Navy.
..	Parseval ..	1914	10	280	49·5	3 Maybach ..	540	20	41·4	47	Army.
Parseval 17	,, ..	1912	9·6	270	50	2 Maybach ..	360	15	37	42	
..	Forlanini ..	1914	15	..	..	4 Italia	320	..	..	..	
P 5	..	1913	4·7	205	40	2 F.I.A.T. ..	160	8	32·5	37	Served in Tripoli.
P 4	..	1912	4·7	205	40	2 F.I.A.T. ..	160	8	32·5	37	Served in Tripoli.
P 3	..	1911	4·4	205	38	1 Clément-Bayard	120	8	28	32	Army.
P 2	..	1910	4·4	205	38	1 Clément Bayard	120	8	28	32	Army.
P 1	..	1907	4·2	198	38	1 Clément-Bayard	120	8	28	32	Army.

And 3 small private ships. An airship named Città di Ferrara was destroyed by an Austrian aeroplane after attacking Fiume, June 8, 1915, and another named Città di Iesi was lost at sea, August 5, after making a raid on Pola.

Japan.

Name.	Make.	Date.	Displacement.	Length.	Diameter.	Motors.	Total H.P.	Fuel endurance at Full Speed.	Speed, knots.	Speed. m.p.h.	Remarks.
			tons	ft.	ft.						
					AIRSHIP.						
Parseval 13 ..	Parseval ..	1912	8·5	260	50	2 Maybach ..	300	10	37	42	Army.

Spain.

España	Astra . ..	1910	4·2	..	..	1 Panhard ..	120	..	18·5	21	Army.

Turkey.

Parseval 9 ..	Parseval ..	1910	2·2	129	20	1 N.A.G. ..	50	8	22	25	Army.

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France.

This Table is published without material alteration.

Name.	Make.	Date.	Displacement.	Length.	Diameter.	Motors.	Total H.P.	Fuel endurance at Full Speed.	Speed, knots.	Speed, m.p.h.	Remarks.
			tons	ft.	ft.						
						RIGID AIRSHIPS.					
?	Astra	1914	38	?	?	Chenu	2000?	24	61·6	70	Building.
Speiss	Zodiac	1912	20	?	47	2 Chenu.. ..	400	?	?	?	Has been lengthened.
						OTHER AIRSHIPS.					
	Astra	1914	23	394	52	4 Chenu.. ..	1000	24	52·8	60	Completing.
?	,, ...	1914	23	394	52	4 ,, ...	1000	24	52·8	60	Ordered.
?	Clément-Bayard ..	1914	22	..	..	4 Clément-Bayard ..	1000	24	44	50	Completing.
?	,, ..	1914	22	..	..	,,	1000	24	44	50	Ordered.
?	Lebaudy ..	1914	17	.	..	Panhard ..	1000	24	44	50	Completing.
?	Zodiac	1914	20	..	..	2 Chenu.. ..	1000	24	44	50	Completing.
?	,, ...	1914	20	..	..	2 Dansette-Gillet ..	1200	..	..	..	Ordered.
Conté	Astra	1913	9·1	270	49	2 Chenu.. ..	400	12	35·2	40	
St. Chauré ..	,, ...	1911	9	285	49	3 Panhard ..	330	10	28·1	32	
Adj. Réau ..	,, ...	1911	9	285	49	2 Brasier ..	240	12	28·1	32	
Dupuy de Lôme	Clément-Bayard ..	1912	9	290	55	2 Clément-Bayard ..	260	12	30·8	35	
Adj. Vincenot	,, ..	1911	9	290	55	,, ..	..	12	30·8	35	
?	Lebaudy ..	1914	10	..	..	Panhard ..	..	..	..	..	
Capt. Marchal	,, ...	1911	10	293	51	2 Panhard ..	160	12	24·6	28	
Lt. Selle de Beauchamp	,, ...	1910	10	293	51	2 ,, ..	160	12	24·6	28	
Liberté	,, ...	1910	7	280	45	2 ,, ..	160	8	29	33	
?	Zodiac	1914	10	..	..	..	..	..	..	..	
?	,, ...	1914	10	..	..	..	..	..	..	..	
Capt. Ferber..	,, ...	1911	6	249	43	2 Dansette-Gillet ..	220	8	30·8	35	
Commandant Coutelle ..	,, ...	1911	9·5	303	49	,,	400	12	33·4	38	
Fleurus	Government Factory ..	1912	6·5	252	41	2 Clément-Bayard ..	160	12	31	36	

And several old and small ships of little value.

Russia.

No additional information can be given concerning the Russian Air Fleet.

Name.	Make.	Date.	Displacement.	Length.	Diam.	Motors.	Total H.P.	Fuel endurance at Full Speed.	Speed, knots.	Speed, m.p.h.	Remarks.
			tons	ft.	ft.						
						RIGID AIRSHIPS.					
Kovanko ..	Baltic Works	1913	13	..	..	4 Laviator ..	320	..	43	..	
?	Parseval ..	1914	27	..	..	..	..	48	43·2	49	
						OTHER AIRSHIPS.					
?	Astra	1914	23	?	?	4 Chenu.. ..	1000	24	52·8	60	
?	Clément-Bayard ..	1914	22	..	..	..	1000	24	..	50	
Albatross ..	Ischora Works	..	..	..	..	..	..	..	..	..	Army.
?	Clément-Bayard ..	1914	6·5	..	..	2 Clément-Bayard ..	360	..	..	..	Army.
Astra 13 ..	Astra	1913	9·8	263	52	2 Chenu.. ..	400	12	35·2	40	Army.
Parseval 14 ..	Parseval ..	1913	9·6	280	55	2 Maybach ..	300	12	37	42	Army.
Clément-Bayard 5 ..	Clément-Bayard ..	1913	9	290	55	2 Clément-Bayard ..	360	12	30	34	Army.

And about 12 small and older ships of little value.

A number of giant Sikorsky biplanes of the Ilya Mourometz type are reported to have been built. The original of the class had approximately the following dimensions:—Length, 65 ft.; span, 12 ft.; bearing surface, 1,958 sq. ft.; weight, 3½ tons; four engines, with HP. given variously as 400, 500, and 660. With 400 HP., the Ilya Mourometz carried a useful weight of a little over 1 ton 1½ cwt., besides nearly 8 cwt. of fuel and oil. She flew for over one and a half hours with sixteen passengers, and for over two hours with the ordinary crew of eight.

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AIRSHIP SHEDS.

Enemy Powers.

Germany.

Place.	Date.	Length.	Breadth.	Height.	Owner.	Remarks.
Aachen	1914	..	..	..	....	
Allenstein	1914	..	..	..	....	
Bickendorf (Cologne) ..	1909	505	168	92	Army	Iron.
Biesdorf (Berlin) ..	1909	445	84	84	Siemens-Schuckert	Iron.
Bitterfeld	1908	257	84	72	Parseval Co. ..	Wood.
Bitterfeld	1909	330	110	84	Parseval Co. ..	Wood.
Brunswick	1914	600	115	92	Private	Iron and stone.
Cologne-Nippes	1914	132	53	42	F. Cloutt.. ..	Wood.
Cuxhaven	1914	600	250	100	Navy	Revolving. Iron.
Dresden	..	634	190	100	State	Iron, wood covered.
Düsseldorf	1910	512	84	80	State	Wood.
Frankfort	1911	540	100	80	Delag Co. ..	Iron.
Friedrichshafen	1908	593	130	66	Zeppelin	Iron.
Fulhsbüttel (Hamburg)	1911	540	126	87	Private	Iron and stone.
Gotha	1910	525	87	87	State	Wood.
Graudenz	1914	..	..	..	....	
Hanover	1914	..	..	..	....	
Johannisthal (Berlin) ..	1910	272	84	84	Private	Wood.
Johannisthal (Berlin) ..	1911	548	126	95	Private	Wood.
Kiel..	1910	560	100	85	Private	Wood.
Königsberg	1911	560	139	125	Army	Iron.
Lahr	1914	..	..	..	....	
Leichlingen	1909	264	78	81	Private	Wood.
Leipzig	1913	640	198	84	Private	Reinforced concrete.
Liegnitz	1913	..	..	..	Army	
Manzell	1900	460	84	84	Zeppelin	Wood.
Metz	1907	495	142	87	Army	Iron.
Oos (Baden-Baden) ..	1910	525	84	80	Delag Co. ..	Iron.
Potsdam	1911	556	165	82	Zeppelin	Iron.
Posen	1914	..	..	..	....	
Rheinau (Mannheim) ..	1907	530	190	100	Schütte-Lanz ..	Wood and Iron.
Schneidemühl	1914	..	..	..	....	
Strassburg	1910	495	90	82	Army	Iron.
Tegel (Berlin)	1906	265	92	82	Private	Wood.
Tegel (Berlin)	1905	165	60	..	Army	Iron.
Tegel (Berlin)	1907	221	72	..	Army	Iron.
Tegel (Berlin)	1910	333	82	82	Army	Iron.
Thorn	1912	..	..	..	Army	Iron.
Trier	1914	..	..	..	....	
Wanne	1912	297	105	90	Private	Wood and Iron.
Several Portable Sheds..	..	265	82	82	Army	Can be erected by 150 men in 2 hours. Cannes.

This list was complete up to the date of the outbreak of war, but since August, 1914 many new airship sheds have been built. Eight or ten are believed to be on the Schleswig-Holstein and North German coasts, from Töndern round to Emden. They are reported to be of special concrete and iron construction, especially designed to resist attack from the air. It was to attack the sheds near Töndern that the raid of March 25th was made. There have been air attacks upon some of the others. One or two Zeppelins are housed at Heligoland, where, it is believed, a disappearing and revolving shed has been erected. There are airship sheds in the occupied countries, near Brussels, Ghent, Lille, and other places on the French and Russian fronts.

Austria-Hungary.

Fischamend	1909	264	..	..	Army	Iron and Stone.
Fischamend	1911	198	..	..	Army	Wood.
Budapest	1912	231	..	..	Army	Wood.
Pola	1914	..	..	..	Navy	

Turkey.

Constantinople	1913	172	50	60	Army	Wood.

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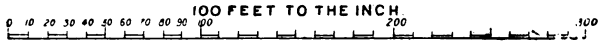
PLANS

OF

FOREIGN SHIPS.

SCALE FOR PLATES.
100 FEET TO THE INCH.



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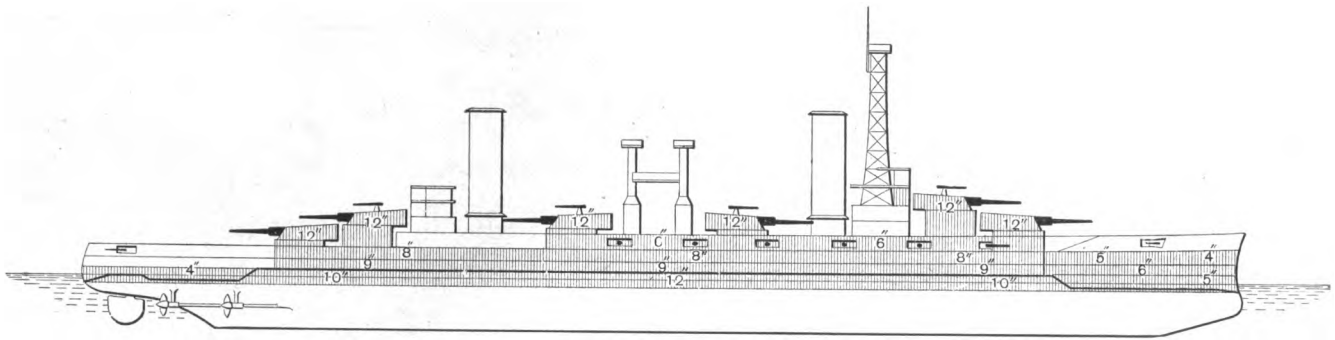
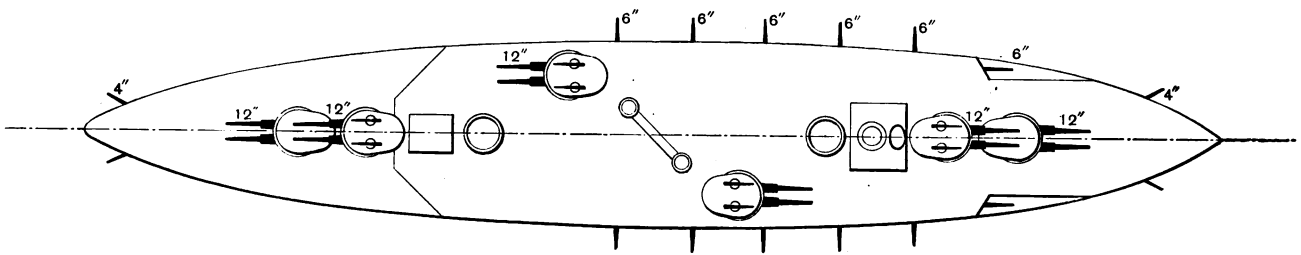
ARGENTINE.

BIBL. LYON

BATTLESHIPS.

Moreno. **Rivadavia.**





Length, 585 ft.; 27,600 tons; Speed, 22·5 knots; Completed, 1914;
Armament, 12—12 in., 12—6 in., 16—4 in., 10 small.

See page 150.

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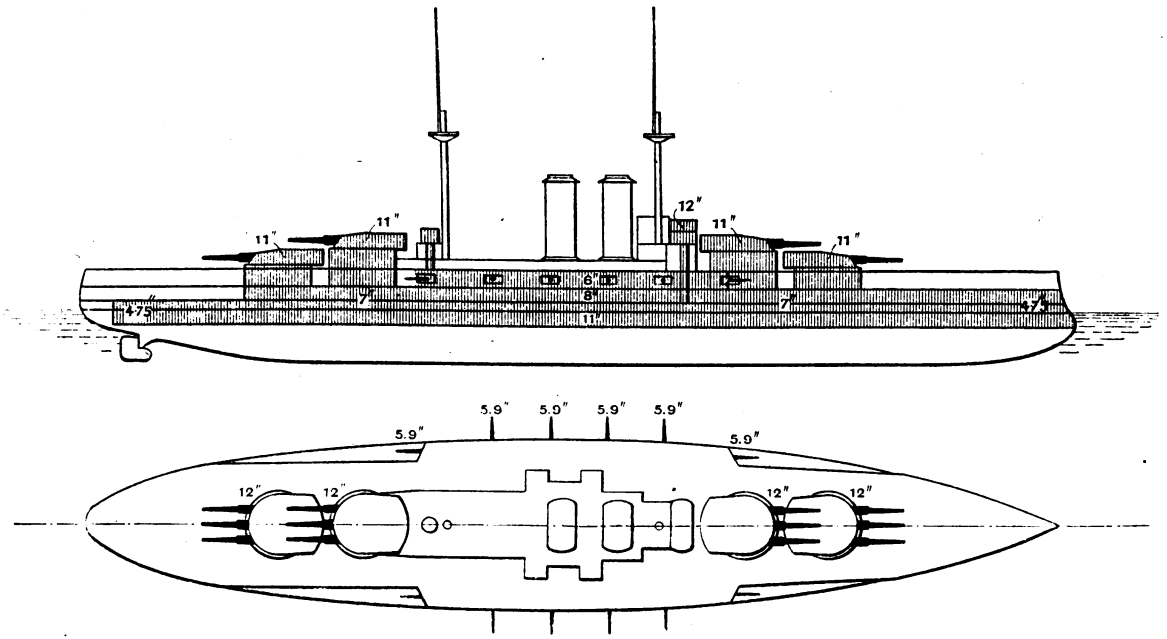
AUSTRIA.

BATTLESHIPS.

Viribus Unitis. **Prinz Eugen.** **Tegetthoff.** **Szent Istvan.**



Length, 495 ft. ; 20,000 tons ; Speed, 20·7 knots ; Completed 1913 and Building ;
Armament, 12—12 in., 12—5·9 in., 18—12 pr., 6 small.

See page 153.

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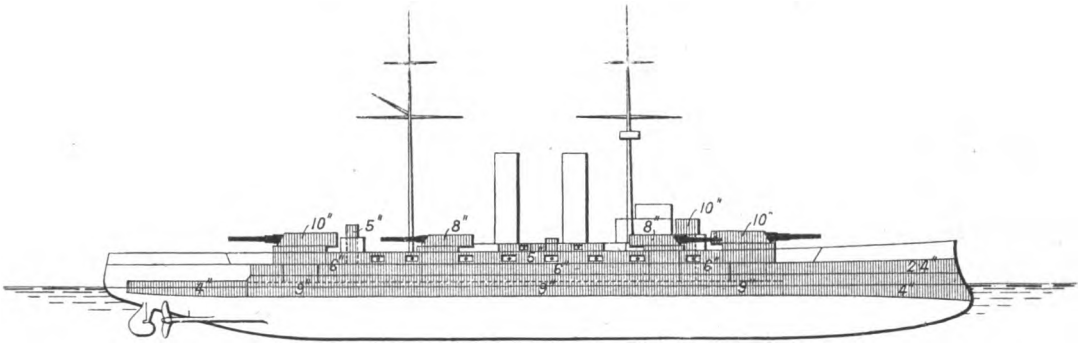
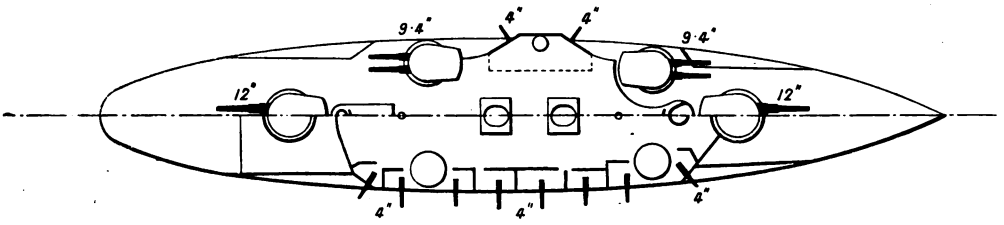
AUSTRIA.

BATTLESHIPS.

Erzherzog Franz Ferdinand. **Radetzky.** **Zrinyi.**

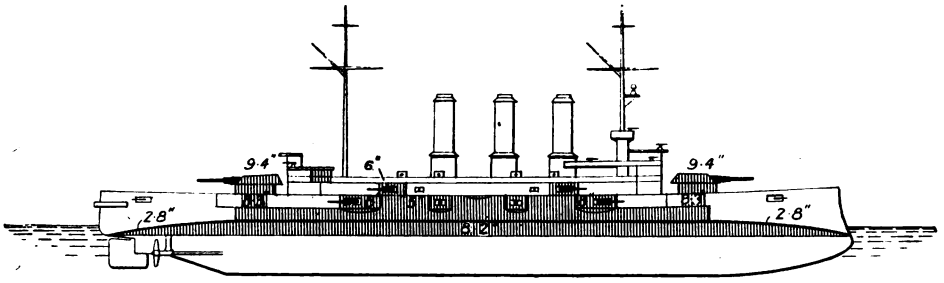


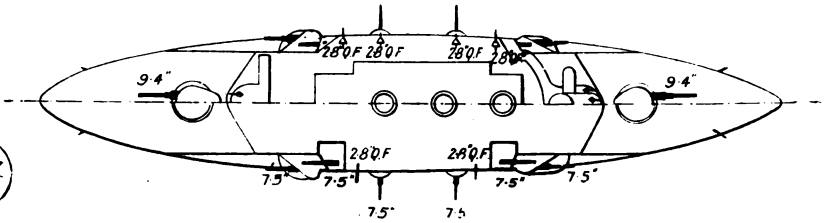


Length, 451 ft. ; 14,226 tons ; Speed, 20·5 knots ; Completed, 1910–1911 ;
Armament, 4—12 in., 8—9·4 in., 20—3·9 in., 6—12 pr., 2 small.

See page 153.

Erzherzog Ferdinand Max. **Erzherzog Karl.** **Erzherzog Friedrich.**





BIBL LYON

Length, 390 ft. ; 10,433 tons ; Speed, 20—20·6 knots ; Completed, 1905–1907 ;
Armament, 4—9·4 in., 12—7·5 in., 12—2·8 in., 16 small.

See page 153.

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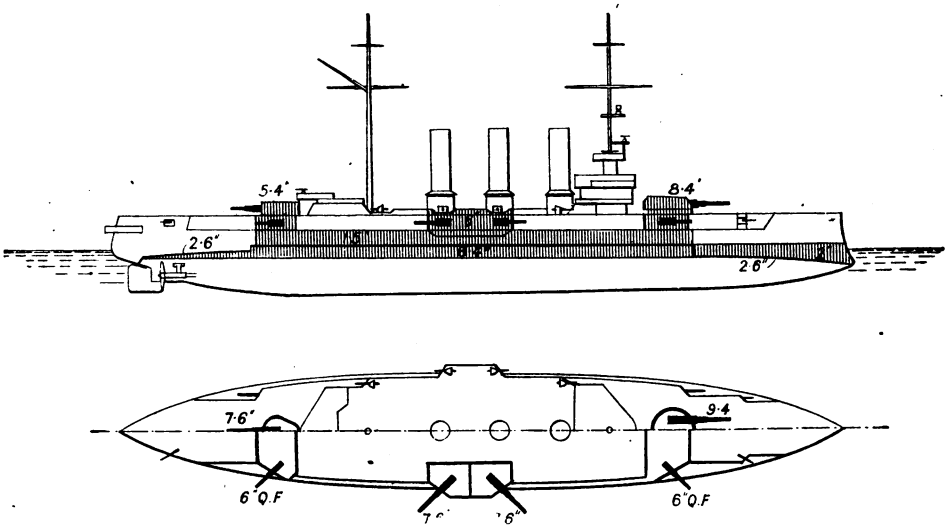
AUSTRIA.

ARMOURED CRUISERS.

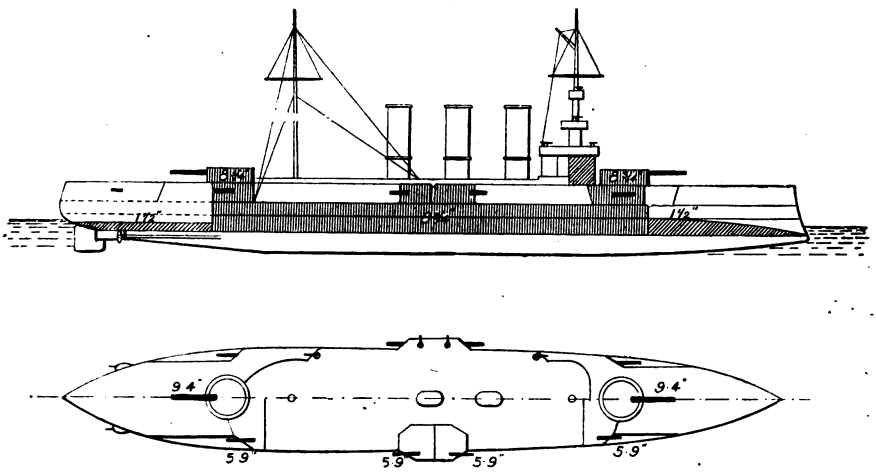
St. Georg.



Length, 384 ft.; 7185 tons; Speed, 22 knots; Completed, 1906;
Armament, 2—9·4 in., 5—7·6 in., 4—5·9 in., 9—2·8 in., 16 small.

See page 116.

Kaiser Karl VI.



Length, 367 ft.; 6151 tons; Speed, 20·7 knots; Completed, 1900;
Armament, 2—9·4 in., 8—5·9 in., 19 small.

See page 153.

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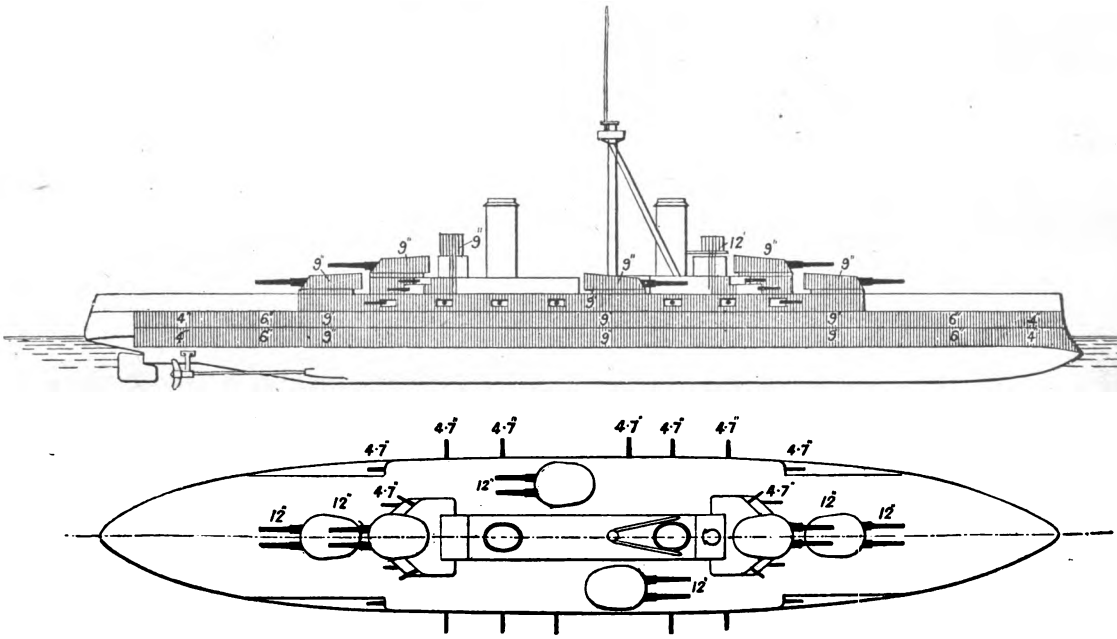
BRAZIL.

BATTLESHIPS.

Minas Geraes. **Sao Paulo.**



Length, 500 ft. ; 19,281 tons ; Speed, 21 knots ; Completed, 1909, 1910 ;
Armament, 12—12 in., 22—4·7 in., 8 small.

See page 155

BIBL LYON

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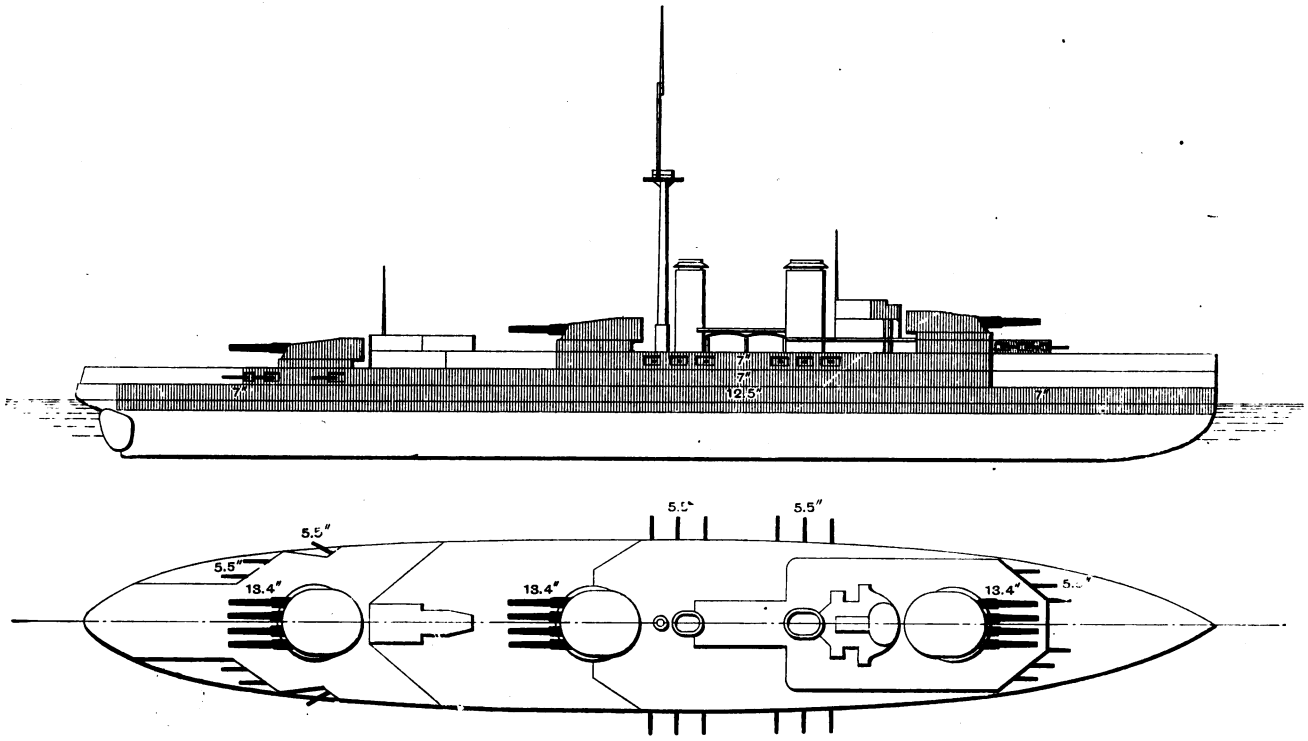
FRANCE.

BATTLESHIPS.

Normandie. Flandre. Gascogne. Languedoc. Béarn.

(The plans of the Lyon, Lille, Duquesne, and Tourville differ from those of Normandie class in placing four 4-gun turrets on the middle line.)



Length, 574 ft.; 24,830 tons; Speed, 21 knots; Building;
Armament, 12—13·4 in., 24—5·5 in., 4—3 pr.

See pages 161, 162, 163.

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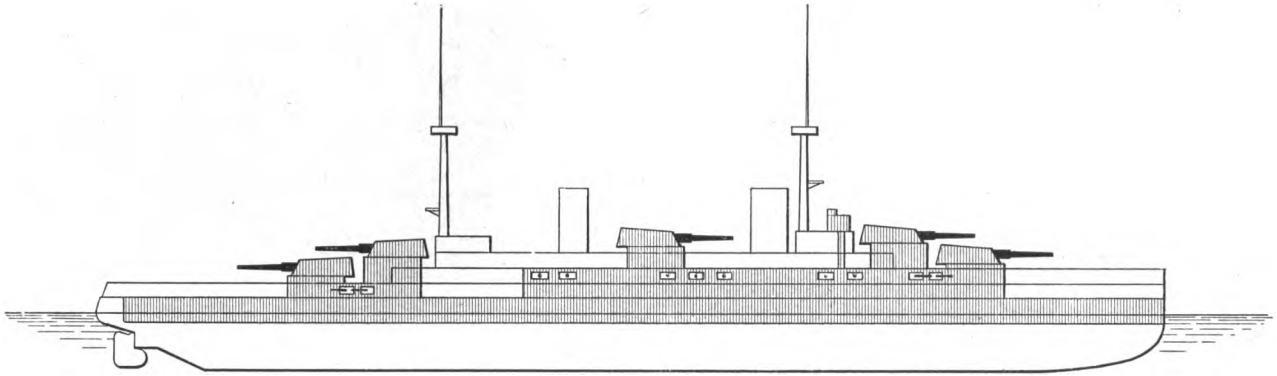
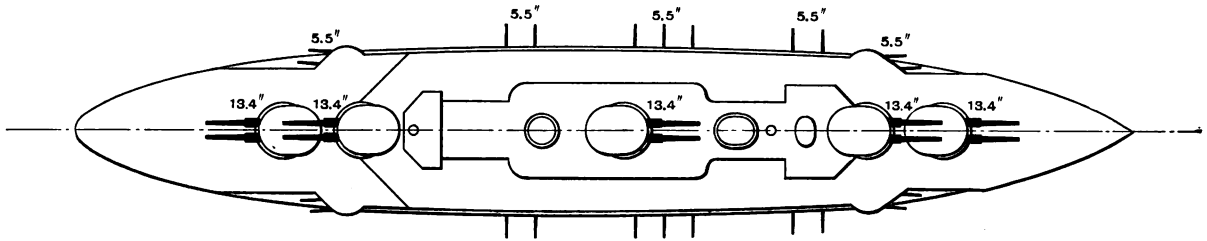
BIBL. LYON

FRANCE.

BATTLESHIPS.

Bretagne. **Provence.** **Lorraine.**





Length, 546 ft. ; 23,177 tons ; Speed, 20 knots ;
Armament, 10—13·4 in., 22—5·5 in., 8 small.

See pages 161, 163, 164.

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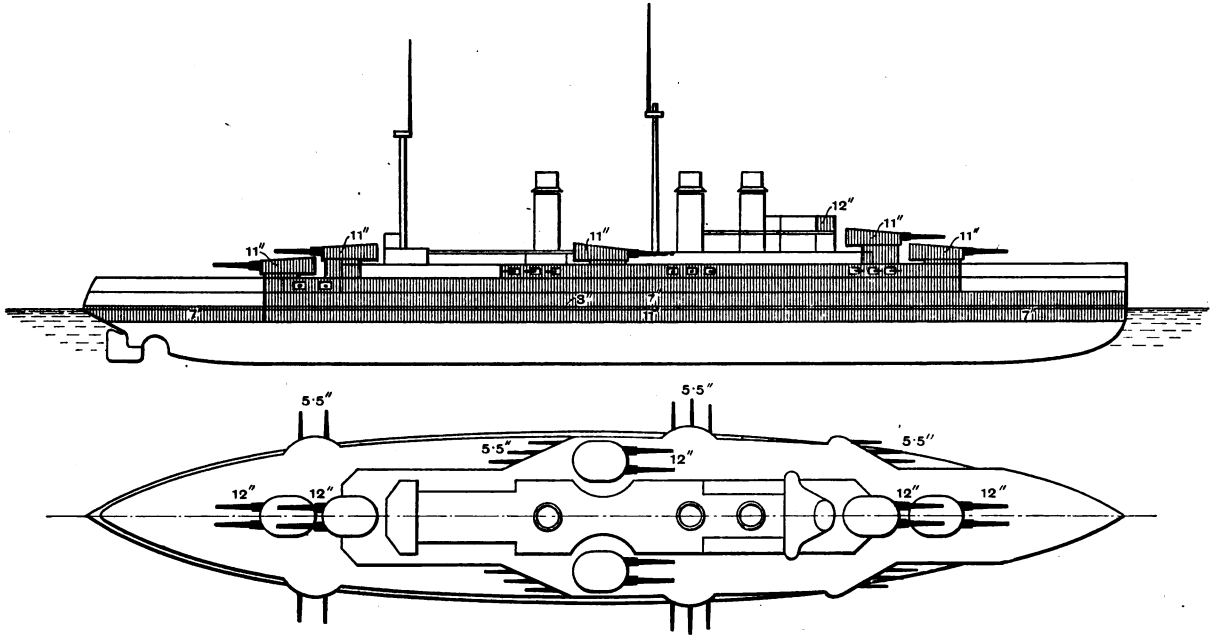
FRANCE.

BATTLESHIPS.

Jean Bart. Courbet. France. Páris.



Length, 546 ft.; 23,100 tons; Speed, 20 knots; Completed 1913–14;
Armament, 12—12 in., 22—5·5 in., 4—3 pr.

See pages 161, 162, 163.

PLATE 25.

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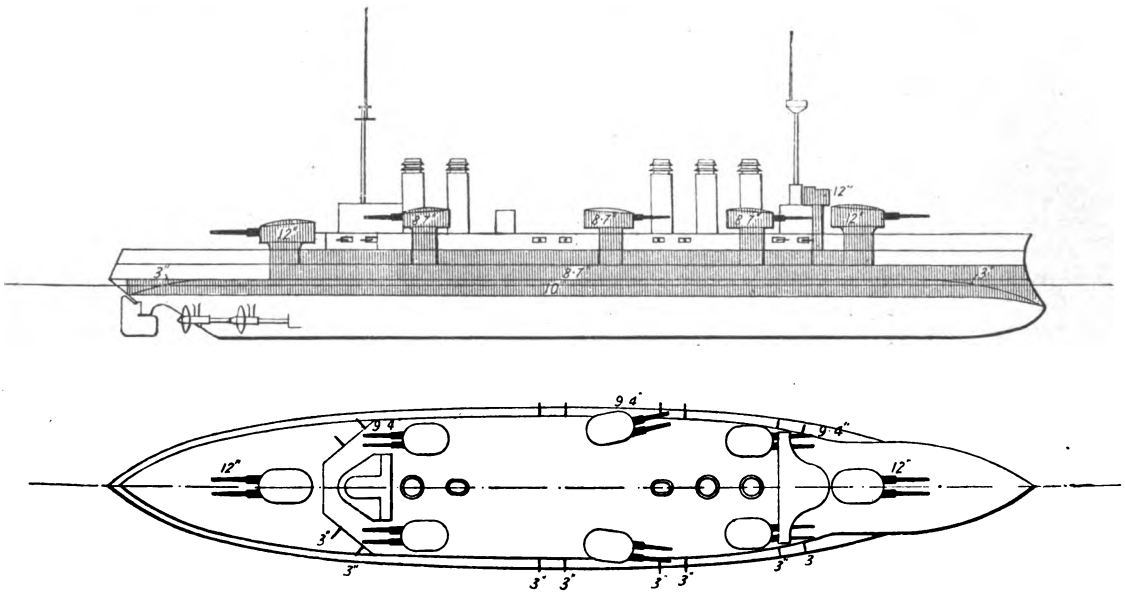
FRANCE.

BATTLESHIPS.

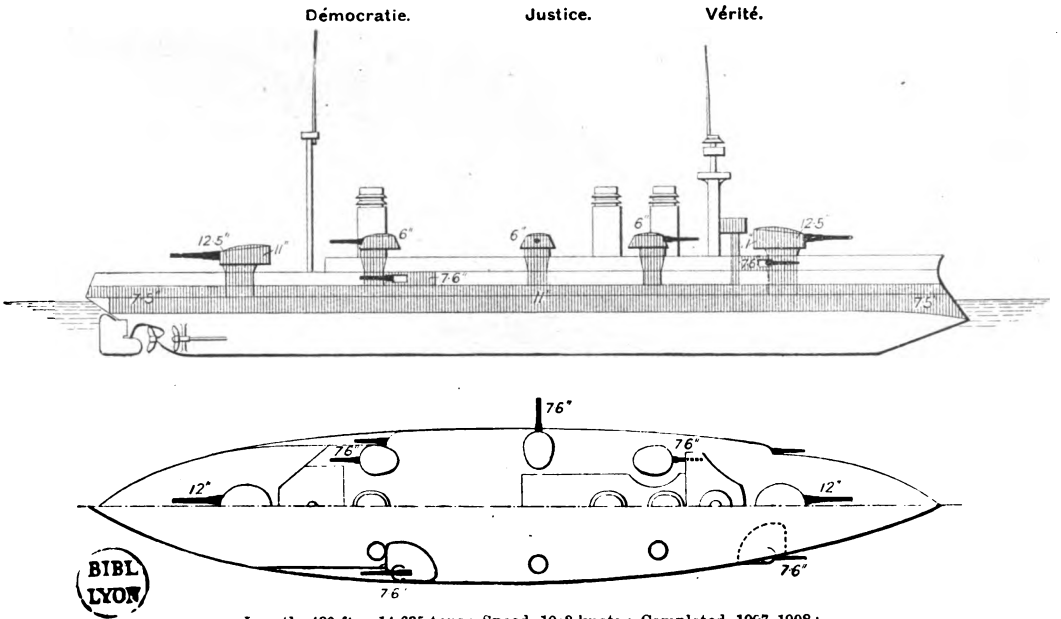
Danton. Condorcet. Diderot. Mirabeau. Vergniaud. Voltaire.



Length, 476 ft. ; 18,028 tons ; Speed, 19·7–20·7 knots ; Completed, 1911 ;
Armament, 4—12 in., 12—9·4 in., 16—12 pr., 10 small.

See pages 161–164.

Démocratie. Justice. Vérité.



BIBL LYON

Length, 439 ft. ; 14,635 tons ; Speed, 19·3 knots ; Completed, 1907–1908 ;
Armament, 4—12 in., 10—7·6 in., 28 small.

See pages 161, 163, 164

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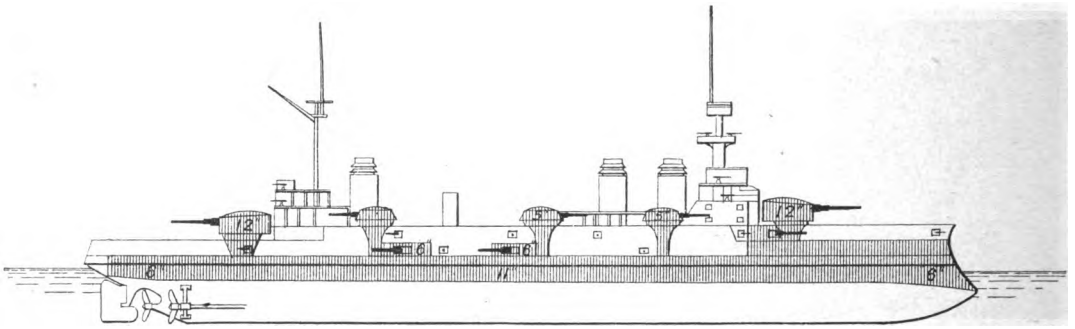
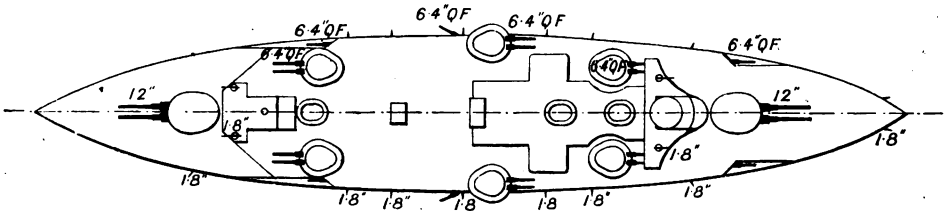
FRANCE.

BATTLESHIPS.

Patrie. **République.**

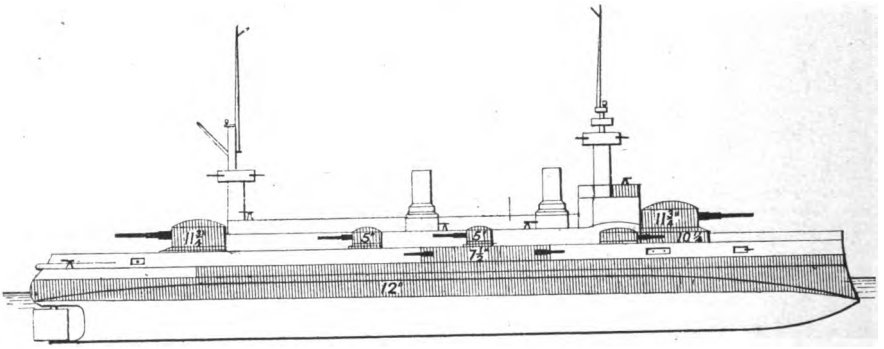


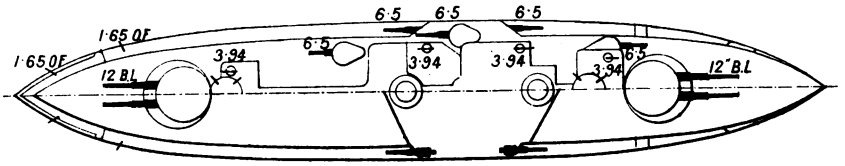


Length, 439 ft.; 14,635 tons; Speed, 19·1 knots; Completed, 1906;
Armament, 4—12 in., 18—6·4 in., 28 small.

See page 163, 164.

Suffren.





Length, 412 ft.; 12,527 tons; Speed, 18 knots; Completed, 1903;
Armament, 4—12 in., 10—6·5 in., 8—3·9 in., 22 small.

See page 164.

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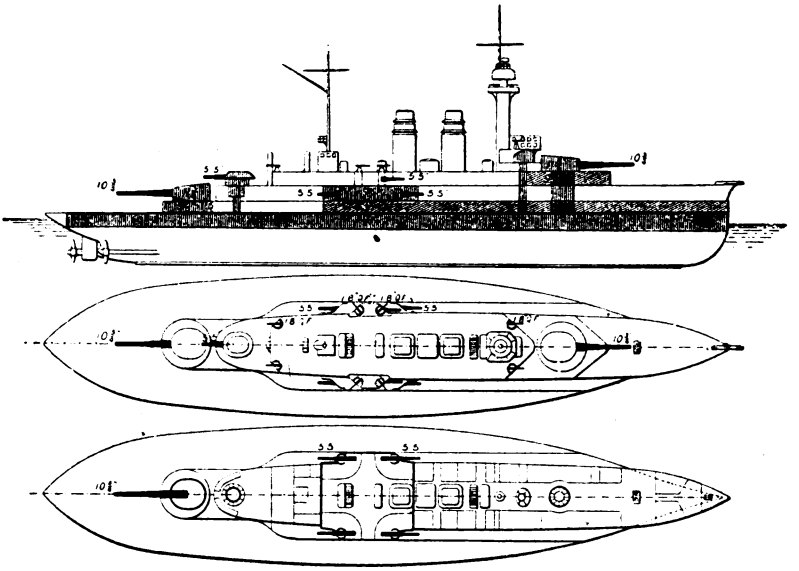
FRANCE.

BATTLESHIPS.

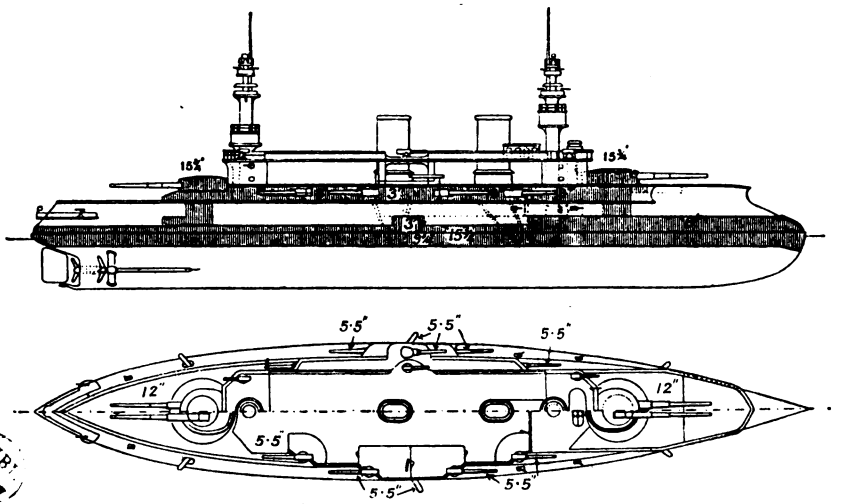
Henri IV.



Length, 354 ft.; 8807 tons; Speed, 17·2 knots; Completed, 1902;
Armament, 2—10·8 in., 7—5·5 in., 14 small.

See page 162.

Charlemagne. Gaulois. St. Louis.



Length, 385 ft.; 11,108 tons; Speed, 18 knots; Completed, 1898-1900;
Armament, 4—12 in., 10—5·5 in., 8—3·9 in., 34 small.

See pages 161, 162, 164.

BIB. LION

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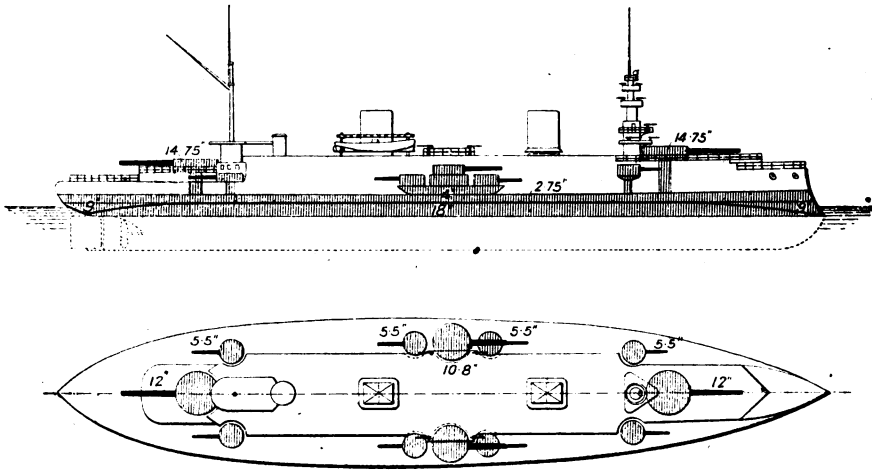
FRANCE.

BATTLESHIP.

Carnot.

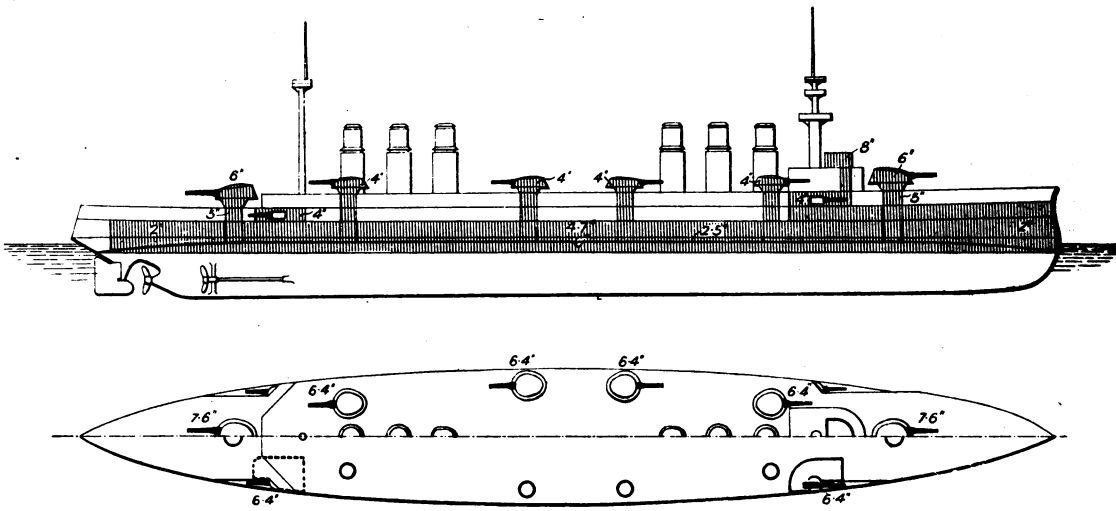


Length, 382 ft. ; 11,954 tons ; Speed, 17·8 knots ; Completed, 1897 ;
Armament, 2—12 in., 2—10·8 in., 8—5·5 in., 30 small.

See page 161.

ARMOURED CRUISER.

Ernest Renan.



Length, 515 ft. ; 13,427 tons ; Speed, 25·5 knots ; Completed, 1909 ;
Armament, 4—7·6 in., 12—6·4 in., 24 small.

See page 162.

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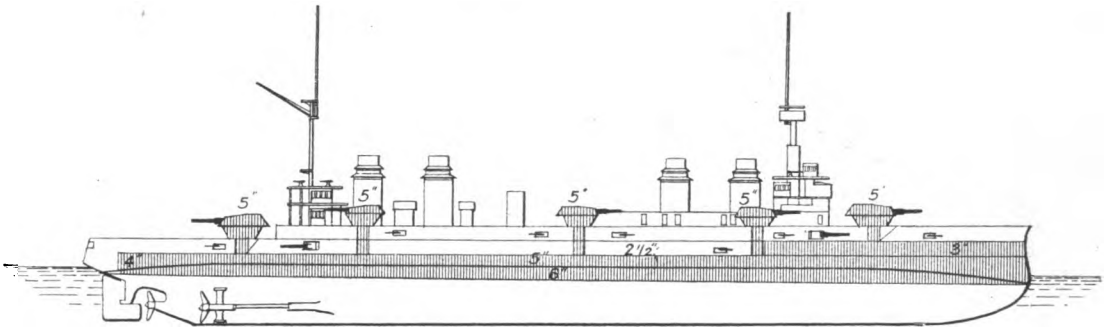
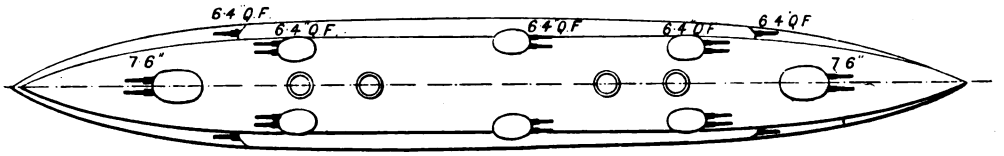
FRANCE.

ARMOURED CRUISERS.

Jules Ferry. **Victor Hugo.**

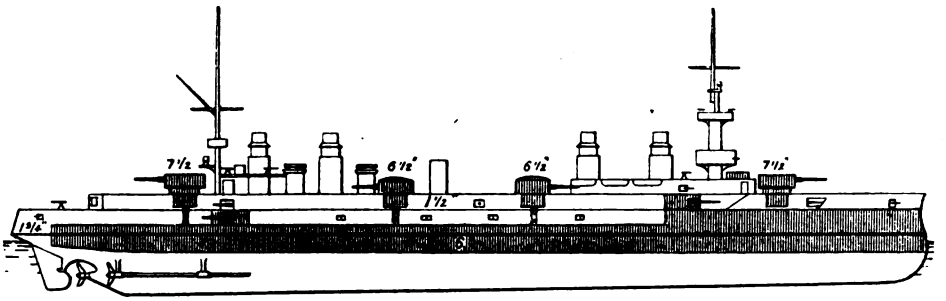


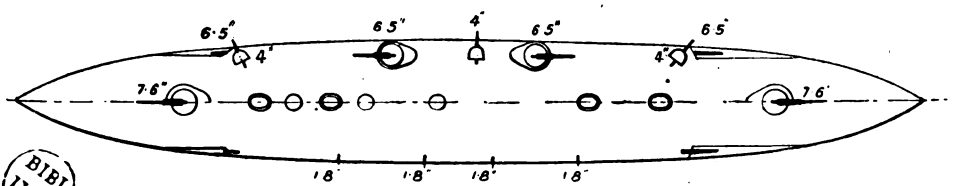


Length, 480 ft. ; 12,351 tons ; Speed, 22·5–23 knots ; Completed 1904–1907 ;
Armament, 4—7·6 in., 16—6·4 in., 24 small.

See pages 163, 164.

Amiral Aube. **Condé.** **Gloire.** **Marseillaise.**





BIBL LYON

Length, 453 ft. ; 9856 tons ; Speed, 21–21·9 knots ; Completed, 1903–1904 ;
Armament, 2—7·6 in., 8—6·4 in., 6—3·9 in., 20 small.

See pages 161, 162, 163.

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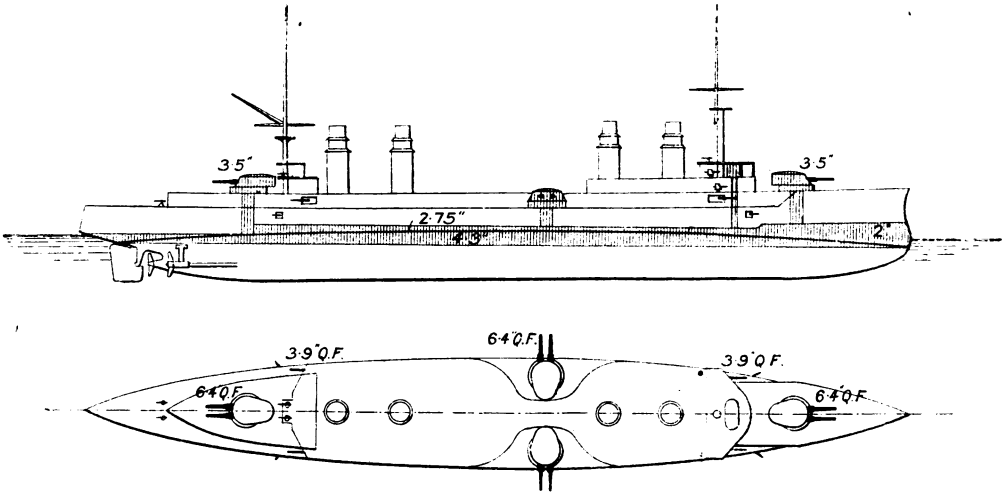
FRANCE.

ARMOURED CRUISERS.

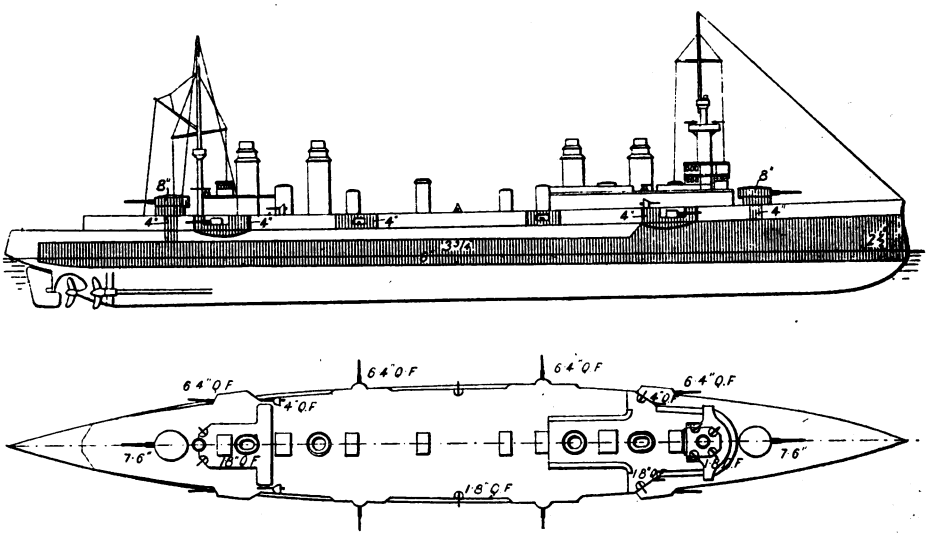
Kléber. Desaix. Dupleix.



Length, 426 ft. ; 7578 tons ; Speed, 21–21·7 knots ; Completed, 1903–1904 ;
Armament, 8—6·4 in., 4—3·9 in., 14 small.

See pages 161, 162, 163.

Montcalm. Dupetit-Thouars. Gueydon.



Length, 453 ft. ; 9367 tons ; Speed, 21–22·5 knots ; Completed, 1902–1905 ;
Armament, 2—7·6 in., 8—6·4 in., 4—3·9 in.

See pages 162, 163

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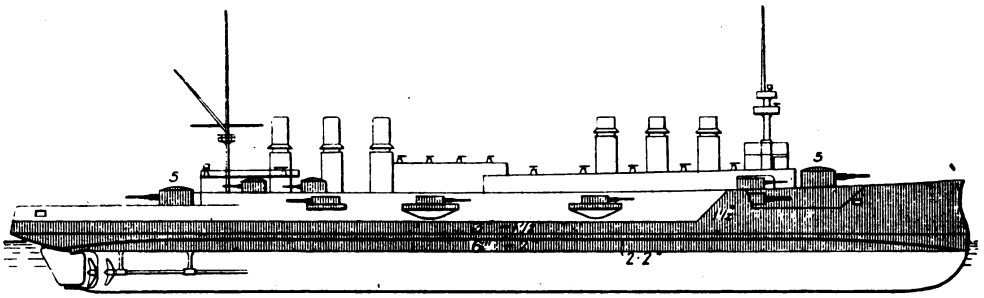
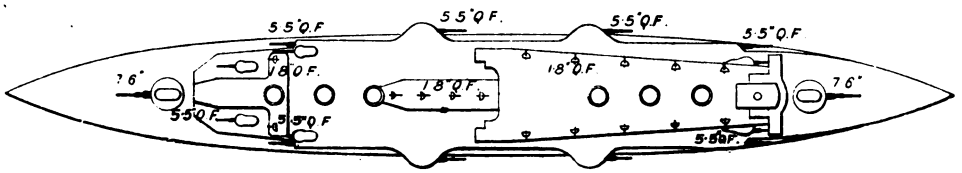
FRANCE.

ARMOURED CRUISER.

Jeanne d'Arc.



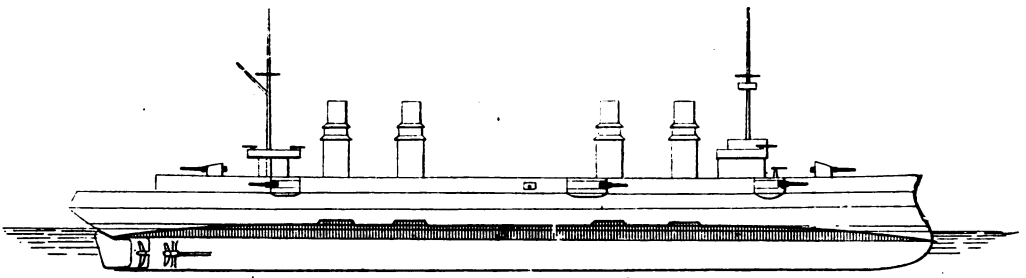


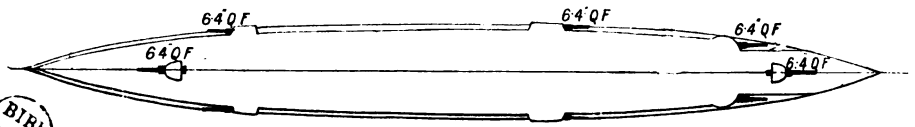
Length, 477 ft. ; 11,092 tons ; Speed, 21·7 knots ; Completed, 1903 ;
Armament, 2—7·6 in., 14—5·5 in., 26 small.

See page 163.

CRUISER.

Jurien de la Gravière.





BIBL LYON

Length, 440 ft. ; 5595 tons ; Speed, 22·9 knots ; Completed, 1901 ;
Armament, 8—6·4 in., 12 small.

See page 166.

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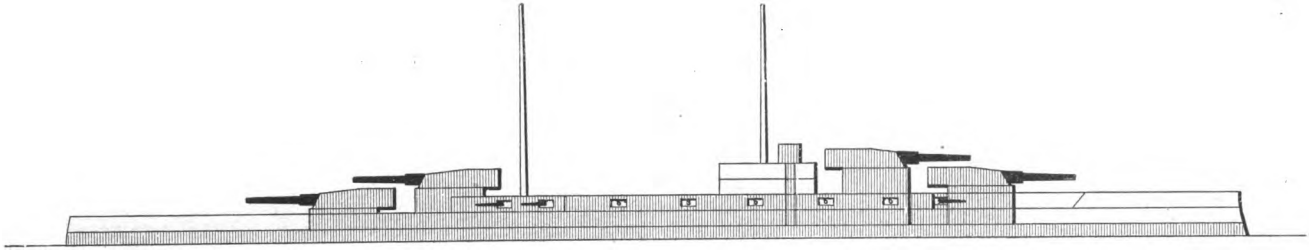
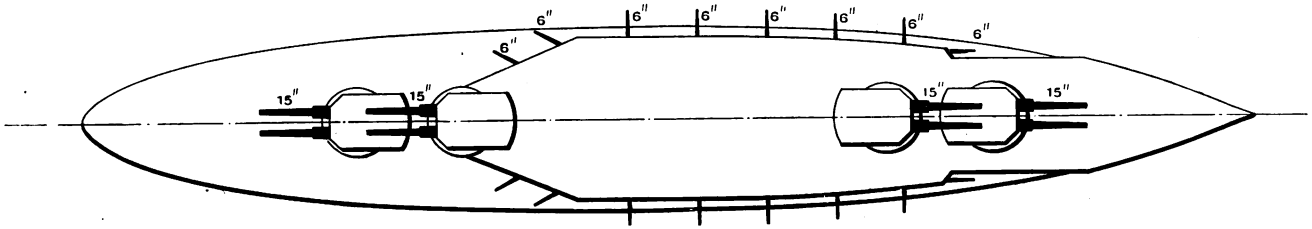
GERMANY.

BATTLESHIPS.

Ersatz Wörth. T. Ersatz Friedrich III.





28,000 tons ; Speed, 23 knots ; Building ;
Armament, 8—15 in., 16—6 in., and small.

See pages 169, 171.

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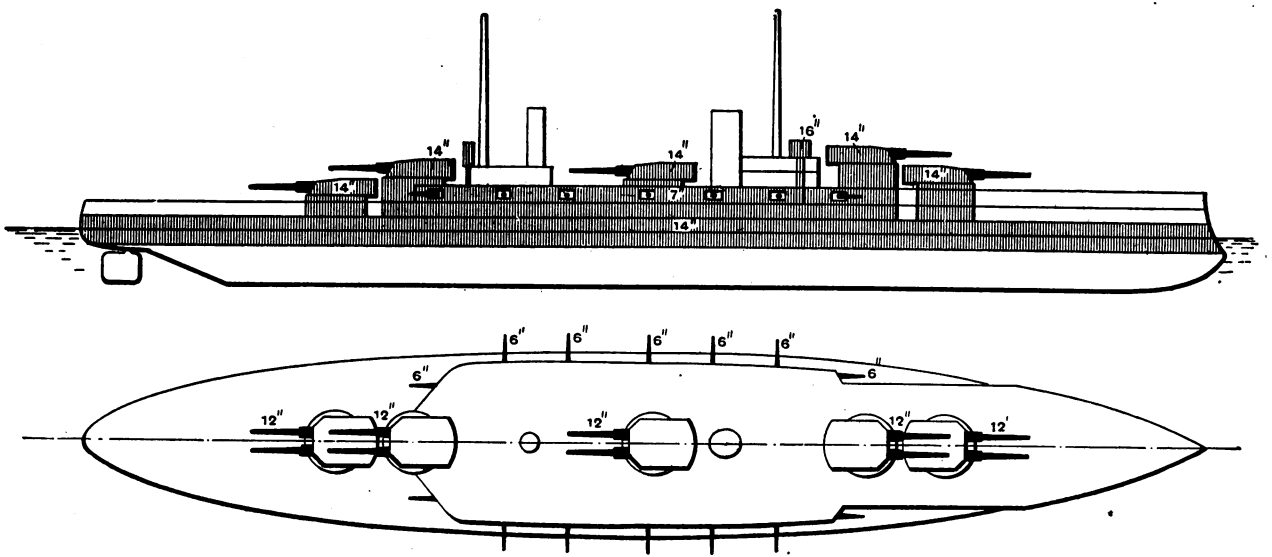
BIBL. LYON

GERMANY.

BATTLESHIPS.

König. Grosser Kurfürst. Markgraf. Kronprinz.



Length, 580 ft. ; 26,575 tons; Speed, 23 knots ; Completed, 1914–15 ;
Armament, 10—12 in., 14—6 in., 12—3·5 in.

N.B.—The Kronprinz was not completed at the beginning of the war, and it is possible that she and the three others of the class may have been partially reconstructed to receive 15-in. guns. *See page* 131.

See pages 169, 170.

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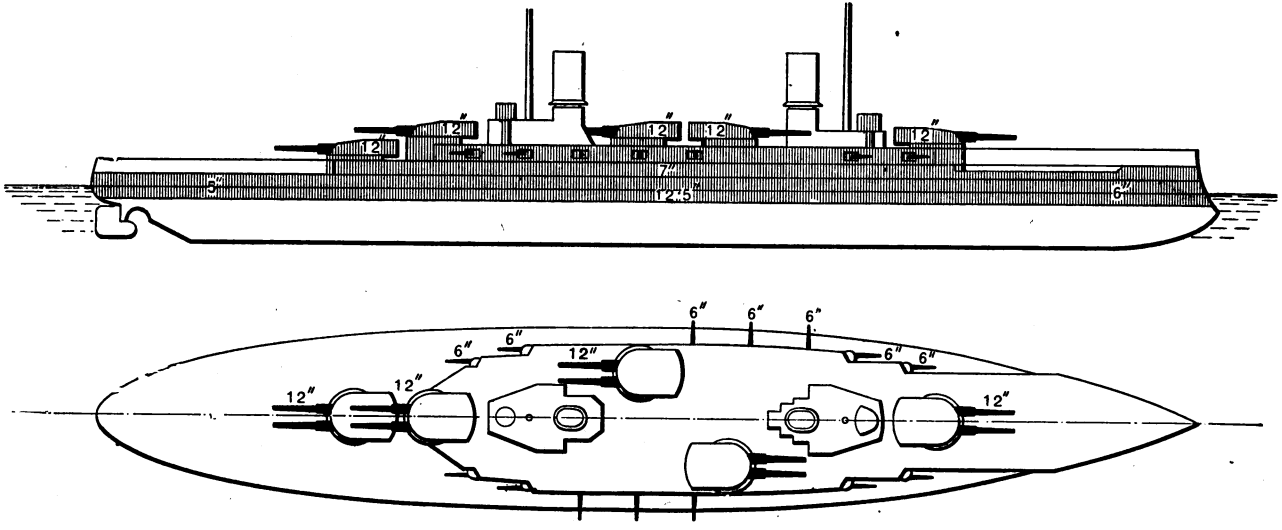
GERMANY.

BATTLESHIPS.

Kaiser. **Friedrich der Grosse** **Kaiserin.** **Prinzregent Luitpold.** **König Albert.**



Length, 564 ft. ; 24,310 tons ; Speed, 22·4 knots ; Completed, 1912 ;
Armament, 10—12 in. ; 14—6 in. ; 12—3·4 in.

See pages 169, 170, 171.

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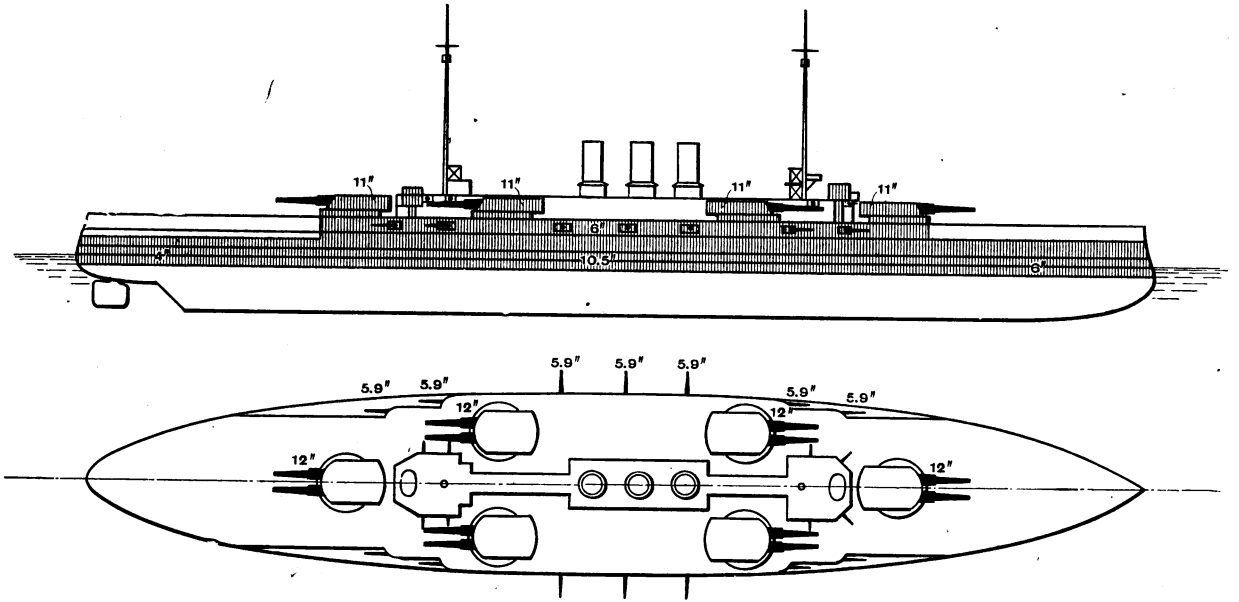
BIBL. DYON.

GERMANY.

BATTLESHIPS.

Ostfriesland. Helgoland. Oldenburg. Thuringen.



Length, 546 ft. ; 22,500 tons ; Speed, 20·5 knots ; Completed, 1911–12 ;
Armament, 12—12 in., 14—5·9 in., 14—3·4 in.

See pages 169, 170, 171.

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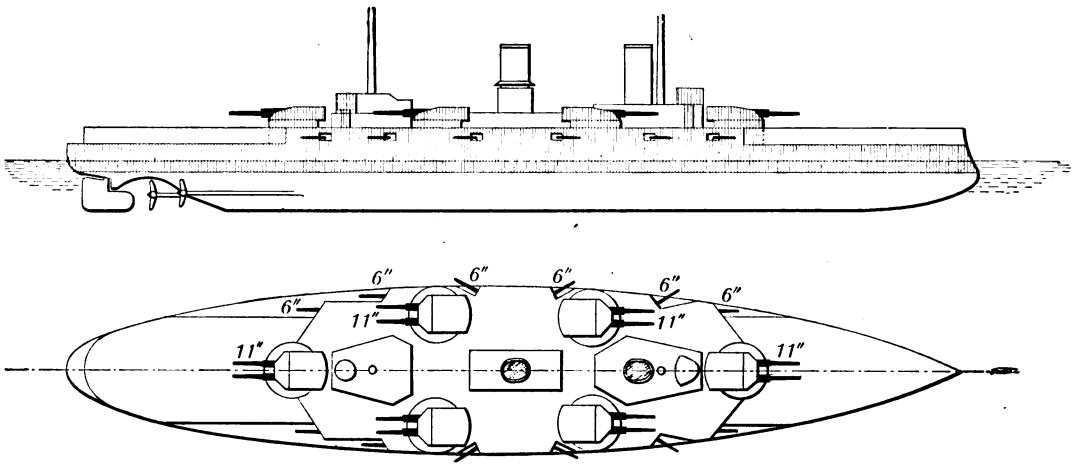
GERMANY.

BATTLESHIPS.

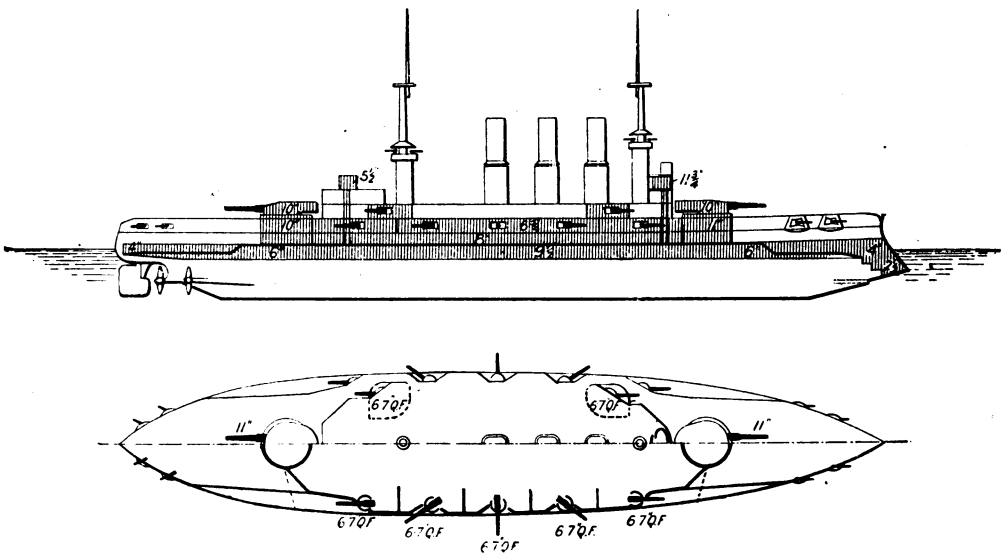
Nassau. **Posen.** **Rheinland.** **Westfalen.**



Length, 452 ft. ; 18,600 tons ; Speed, 20–20·7 knots ; Completed, 1909–1910 ;
Armament, 12—11 in., 12—6 in., 16—3·4 in.

See pages 170, 171.

Deutschland. **Hannover.** **Pommern.** **Schlesien.** **Schleswig-Holstein.**



Length, 398 ft. ; 13,040 tons ; Speed, 18·5—19·5 knots ; Completed, 1906–1908 ;
Armament, 4—11 in., 14—6·7 in., 22—3·4 in., 8 small.

See pages 169, 171.

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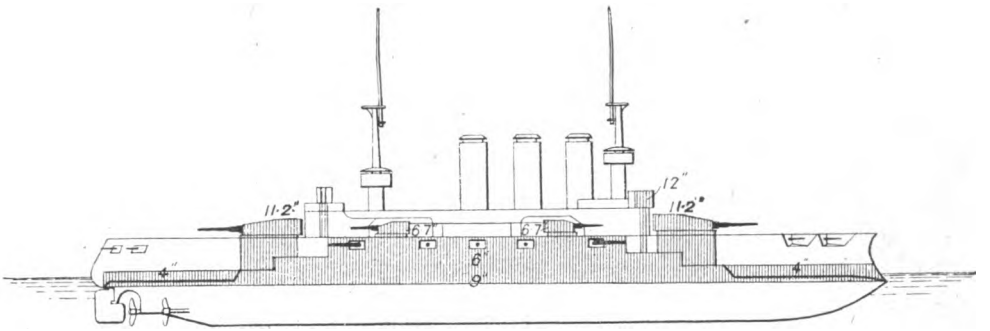
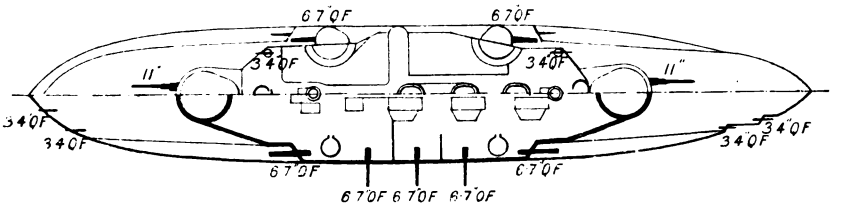
GERMANY.

BATTLESHIPS.

Braunschweig. Elsass. Hessen. Lothringen. Preussen.

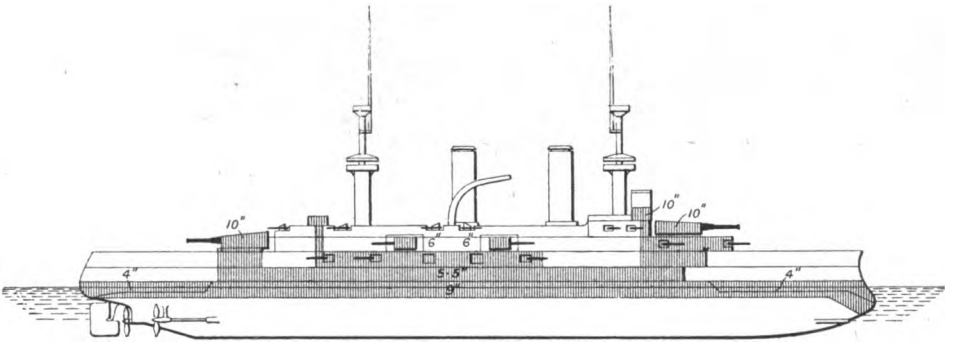


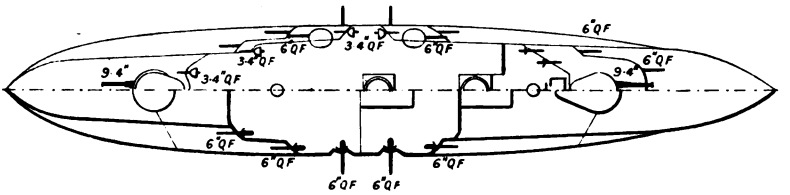


Length, 398 ft.; 12,997 tons; Speed, 18—18·7 knots; Completed, 1904–1906;
Armament, 4—11 in., 14—6·7 in., 18—3·4 in., and small.

See pages 169, 170, 171.

Wittelsbach. Mecklenburg. Schwaben. Wettin. Zähringen.





BIBL LYON

Length, 394 ft.; 11,611 tons; Speed, 18—19 knots; Completed, 1902–1903;
Armament, 4—9·4 in., 18—6 in., 12—3·4 in., 20 small.

See pages 170, 171.

PLATE 38.

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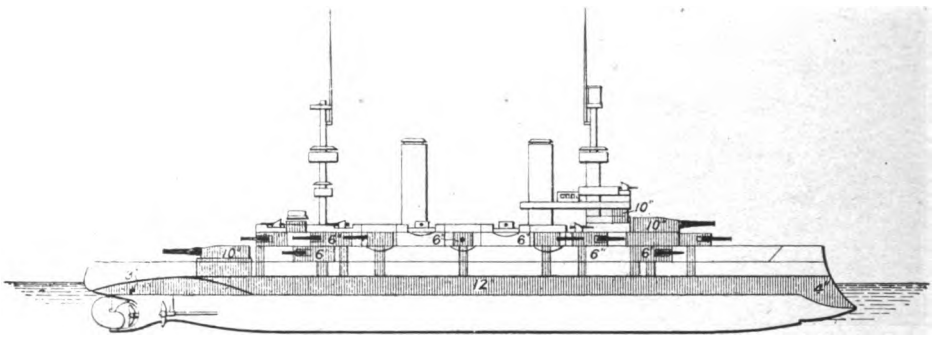
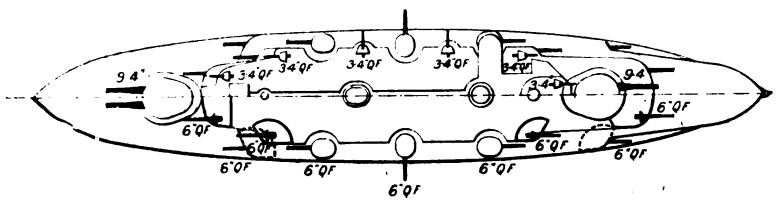
GERMANY.

BATTLESHIPS.

Kaiser Friedrich III. Kaiser Karl der Grosse. Kaiser Wilhelm II. Kaiser Wilhelm der Grosse. Kaiser Barbarossa.





Length, 377 ft. ; 10,474 tons ; Speed, 18 knots ; Completed, 1898–1901 ;
Armament, 4—9·4 in., 18—6 in., 12—3·4 in., 20 small.
NOTE.—Superstructure has been cut down.

See page 170.

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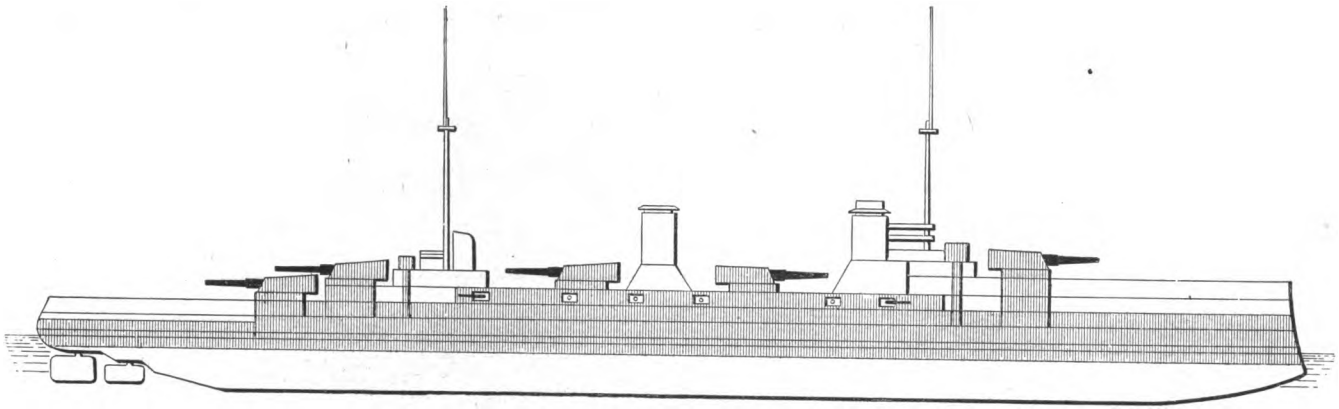
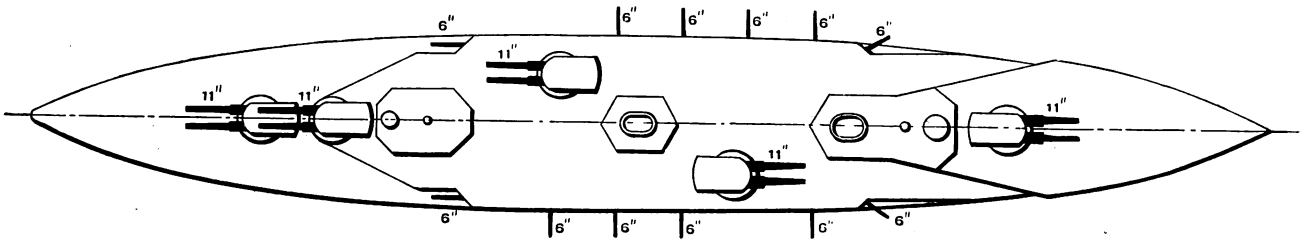
BIBL. NAVAL

GERMANY.

BATTLE CRUISER.

Seydlitz.





Length, 656 ft. ; 24,640 tons ; Speed, 29·2 knots ; Completed, 1913 ;
Armament, 10—11 in., 12—6 in., 12—3·5 in. Derfflinger has eight 12-in. guns on the middle line ; Hindenburg, eight 15 in.

See page 171.

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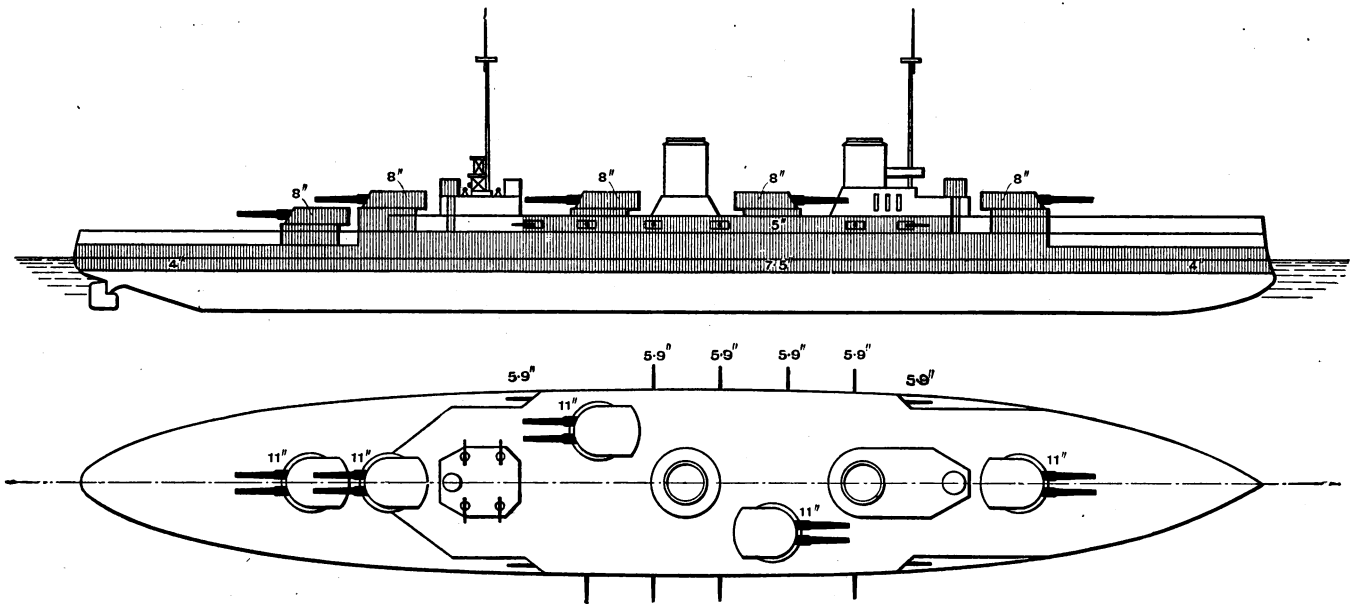
GERMANY.

BATTLE CRUISER.

Moltke. (**Goeben**, transferred to Turkey).



Length, 610 ft. ; 22,640 tons ; Speed, 28·5 knots ; Completed, 1911-12 ;
Armament, 10—11 in., 12—5·9 in., 12—3·4 in.

See pages 170, 198.

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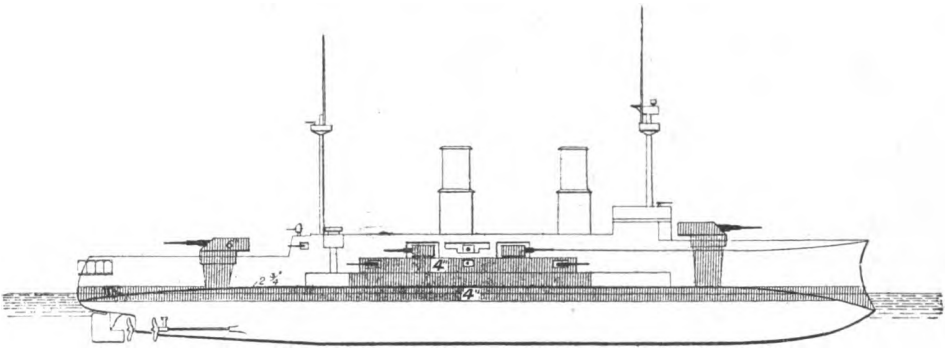
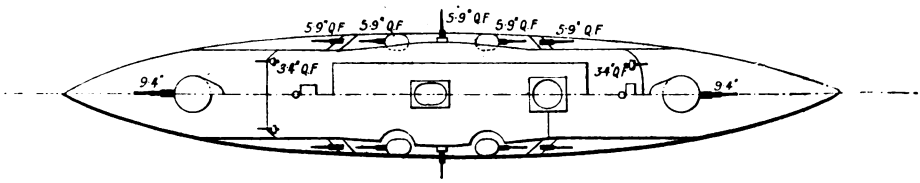
GERMANY.

ARMOURED CRUISERS.

Prinz Heinrich.

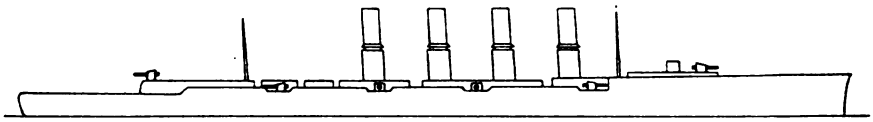


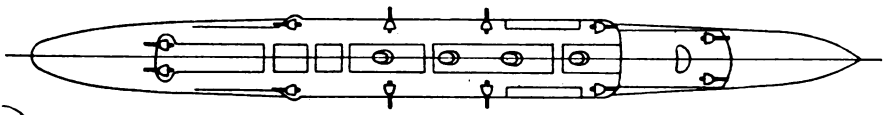


Length, 396 ft. ; 8759 tons ; Speed, 20 knots ; Completed, 1902 ;
Armament, 2—9·4 in., 10—5·9 in., 10—3·4 in., 7 small.

See page 171.

Strassburg. **Stralsund.** **Rostock.** **Graudenz.** **Regensburg.**





BIBL. LYON

Length, 456 ft ; 4500 tons Speed, 27·5 knots ; Completed, 1910–1912 ;
Armaments, 12– 4·1 in.

See pages 173, 174.

Also **Midillieh, *ex*-Breslau** (Turkish), page 199.

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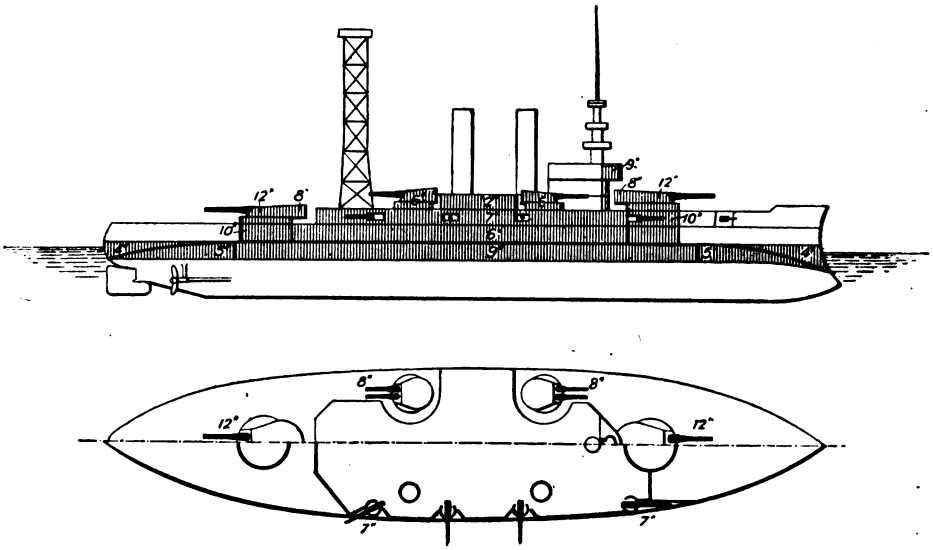
GREECE.

BATTLESHIPS.

Lemnos (*ex*-Idaho). **Kilkis (*ex*-Mississippi).**

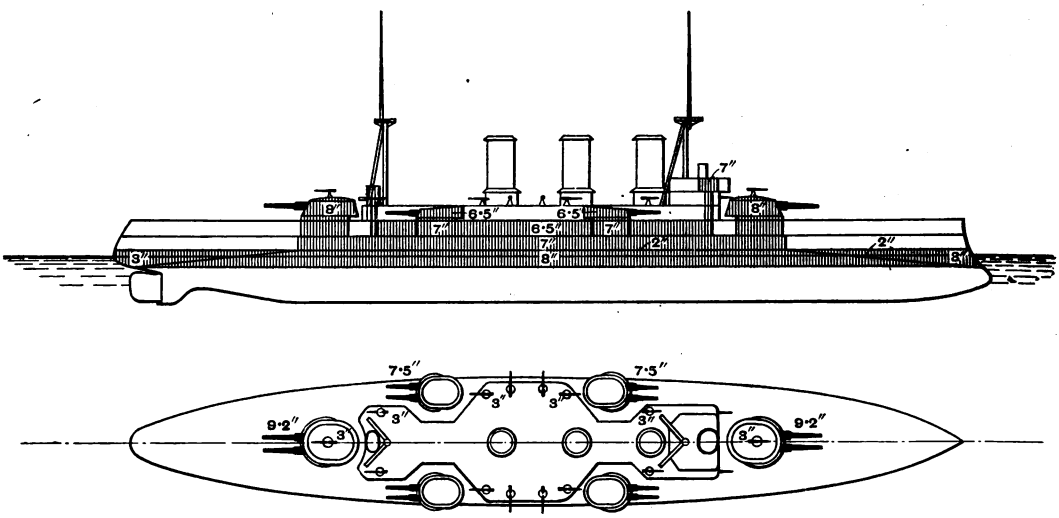


Length, 375 ft. ; 13,000 tons ; Speed, 17 knots ; Completed, 1908 ;
Armament, 4—12 in., 8—8 in., 8—7 in., 12—3 in., 20 small.

See page 176.

ARMOURED CRUISER.

Giorgios Averoff.



Length, 430 ft. ; 9956 tons ; Speed, 24 knots ; Completed, 1911 ;
Armament, 4—9·2 in., 8—7·5 in., 16—3 in., 8 small.

See page 176.

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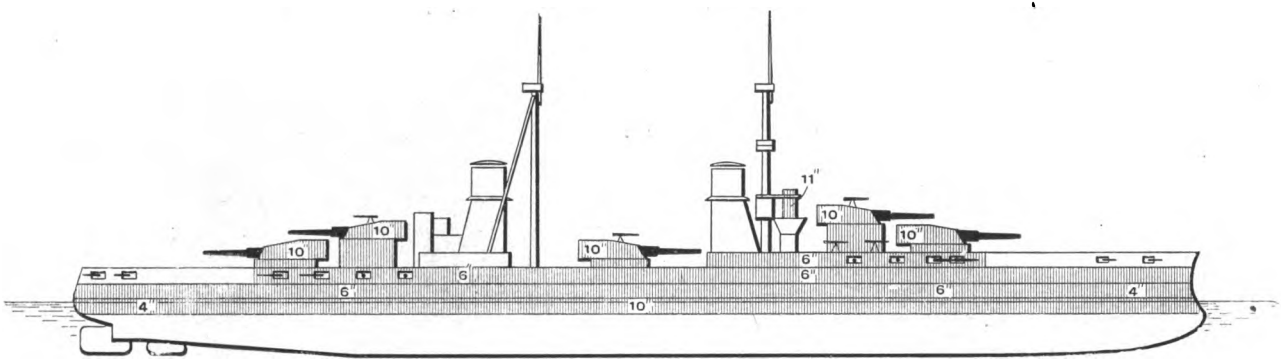
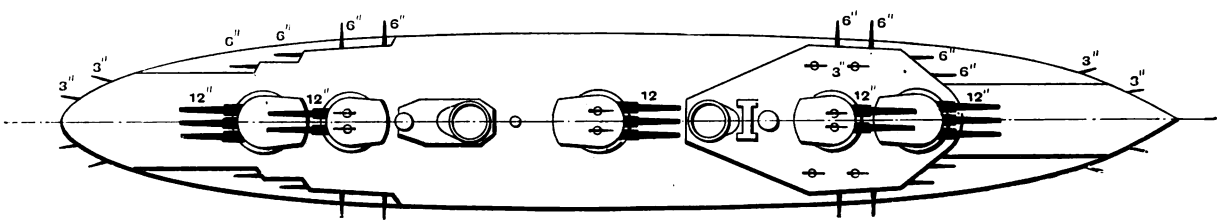
BIBL. LYON

ITALY.

BATTLESHIPS.

Andrea Doria. **Duilio.**





Length, 570 ft. ; 23,025 tons ; Speed, 23 knots ; 1915 and Building ;
Armament, 13—12 in., 16—6 in., 14—12 pr., 6 small.

N.B.—In the next succeeding class, Francesco Morosini, Caracciolo, Cristoforo Colombo, and Marcantonio Colonna, eight 15-in. guns were being mounted in four turrets on the middle line, as in the Queen Elizabeth.

See page 177.

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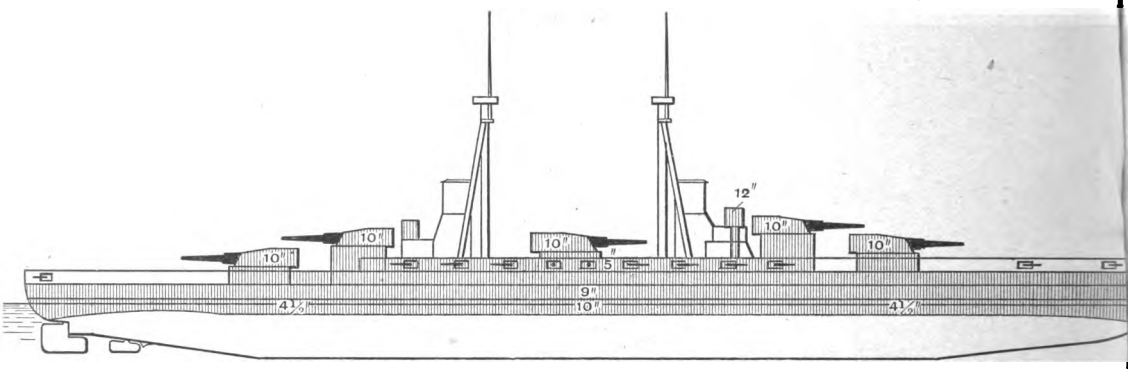
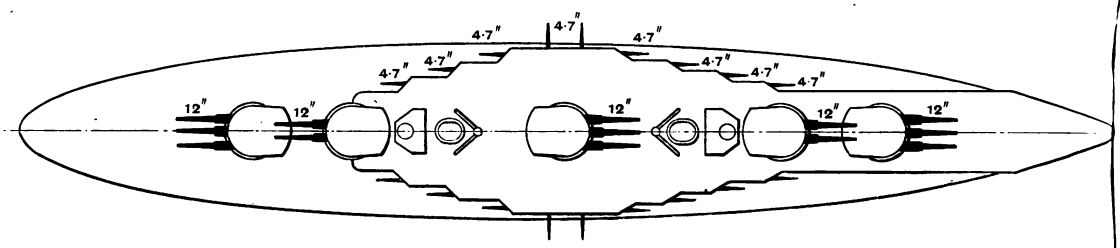
ITALY.

BATTLESHIPS.

Conte di Cavour. Giulio Cesare. Leonardo da Vinci.

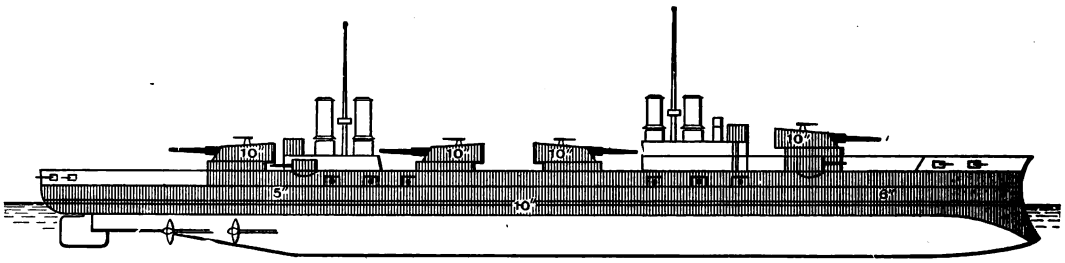


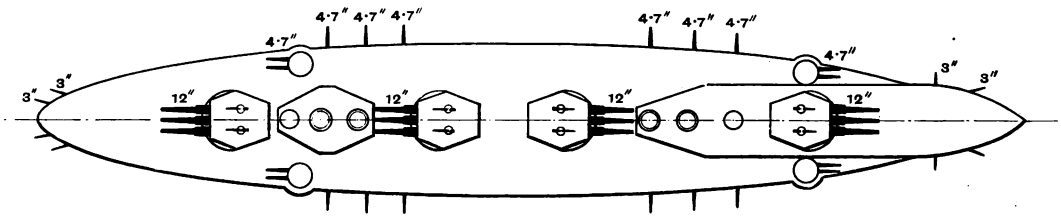


Length, 557 ft. ; 22,340 tons ; Speed, 22·5–23 knots ; 1914—Building ;
Armament, 13—12 in., 18—4·7 in., 14—12 pr.

See page 177.

Dante Alighieri.





Length, 505 ft. ; 19,400 tons ; Speed, 23·8 knots ; Completed, 1912 ;
Armament, 12—12 in., 20—4·7 in., and small.

See page 177.

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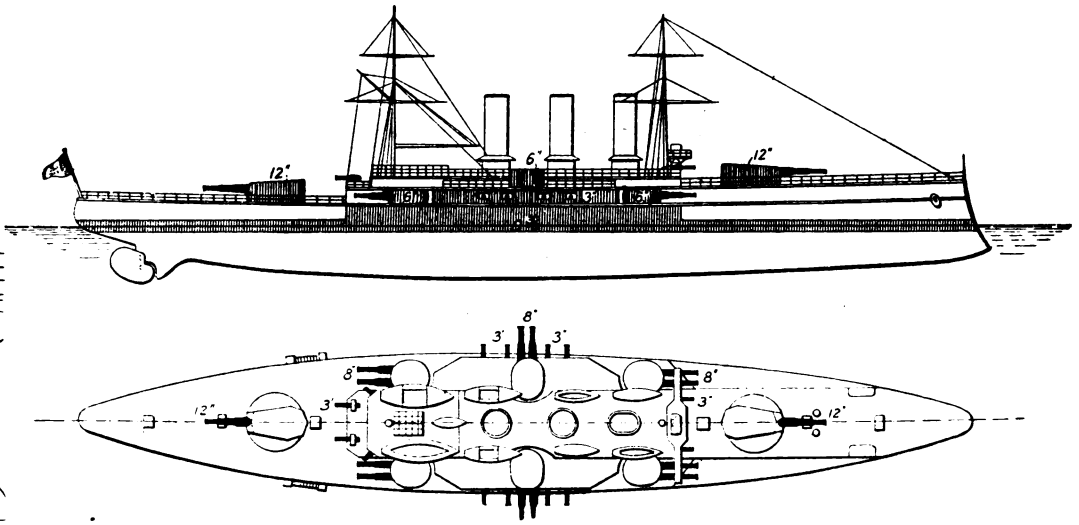
ITALY.

BATTLESHIPS.

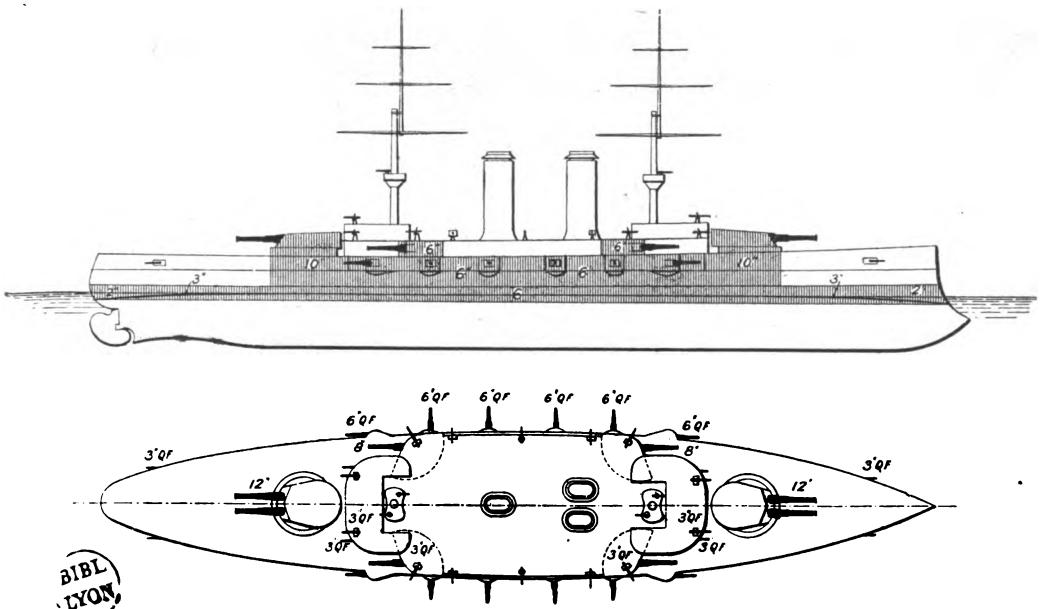
Vittorio Emanuele. **Napoli.** **Regina Elena.** **Roma.**



Length, 435 ft. ; 12,425 tons ; Speed, 22 knots ; Completed, 1907—1909 ;
Armament, 2—12 in., 12—8 in., 12—3 in., 12 small.

See page 178.

Regina Margherita. **(Benedetto Brin.)**



BIBL LYON

Length, 426 ft. ; 13,214 tons ; Speed, 19·5–20·2 knots ; Completed, 1904 ;
Armament, 4—12 in., 4—8 in., 12—6 in., 16—3 in., 10 small.

See pages 177, 178.

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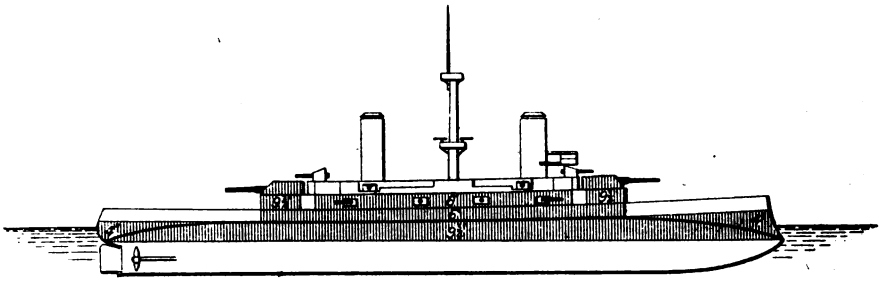
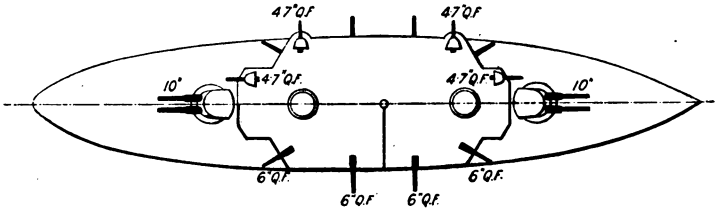
ITALY.

BATTLESHIPS.

Ammiraglio di St. Bon. **Emanuele Filiberto.**



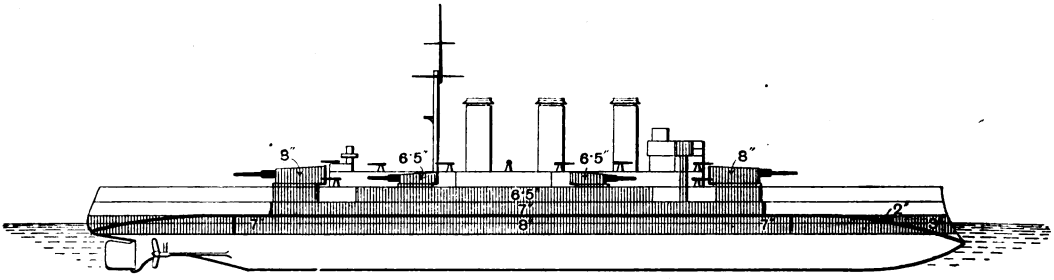


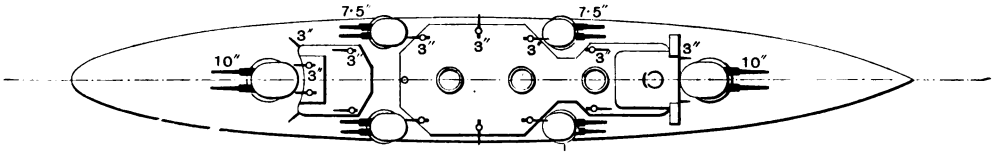
Length, 344 ft. ; 9645 tons ; Speed, 18·3 knots ; Completed, 1901–1902 ;
Armament, 4—10 in., 8—6 in., 8—4·7 in., 2—2·9 in., 8 small.

See page 177.

ARMOURED CRUISER.

Pisa. **(Amalfi.)**





Length, 430 ft. ; 9956 tons ; Speed, 23 knots ; Completed, 1909 ;
Armament, 4—10 in., 8—7·5 in., 16—3 in., 2 small.

See pages 177, 178.

PLATE 47.

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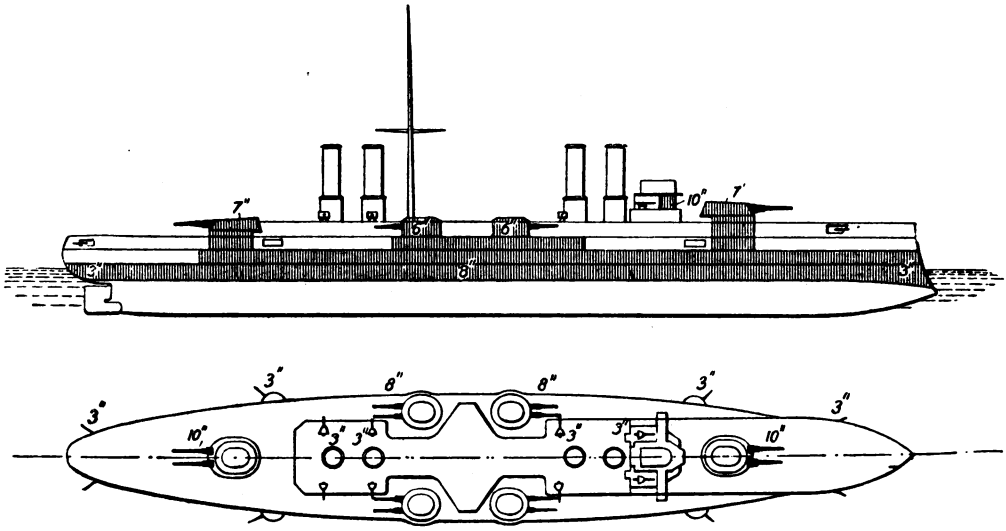
ITALY.

ARMOURED CRUISERS.

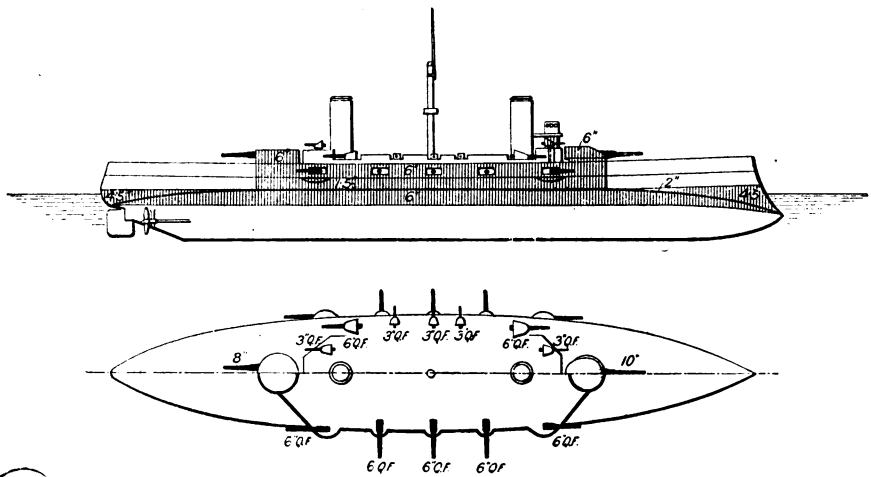
S. Giorgio. **S. Marco.**



Length, 430 ft. ; 9832 tons ; Speed, 22·5 knots ; Completed, 1910 ;
Armament, 4—10 in., 8—8 in., 16—3 in., 8 small.

See page 178.

Francesco Ferruccio. **Varese.**



BIBL. LYON

Length, 344 ft. ; 7294 tons ; Speed, 20 knots ; Completed, 1901–1904 ;
Armament, 1—10 in., 2—8 in., 14—6 in., 10—3 in., 8 small.

See pages 177, 178.

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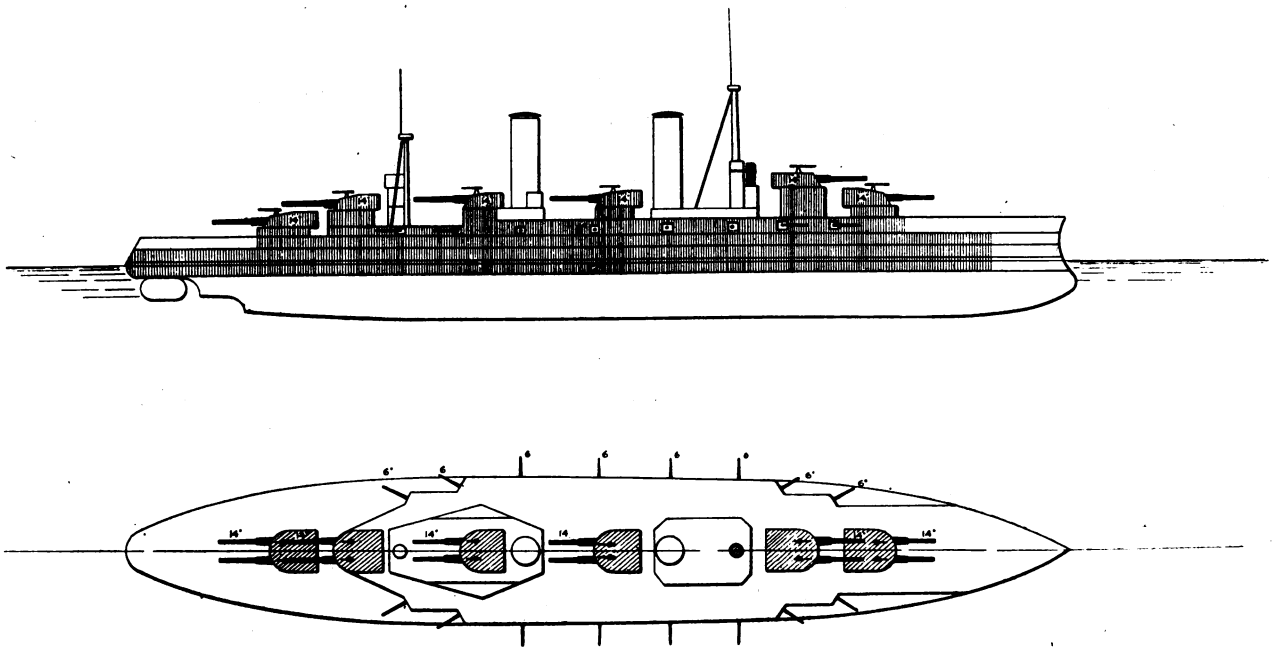
JAPAN.

BATTLESHIPS.

Fuso. Huga. Ise. Yamashiro.



Length, 658 ft. ; 31,000 tons ; Speed, 22·5 knots ; 1915 and Building ;
Armament, 12—14-in., 16—6-in., 4—12 pr.

NOTE.—The armour on the turrets is 12 in., not 14 in. as shown, and, owing to an oversight in the drawing, the armoured substructure of the conning-tower is not shown ; also the water-line belt is continued to the bows.

See pages 181–183.

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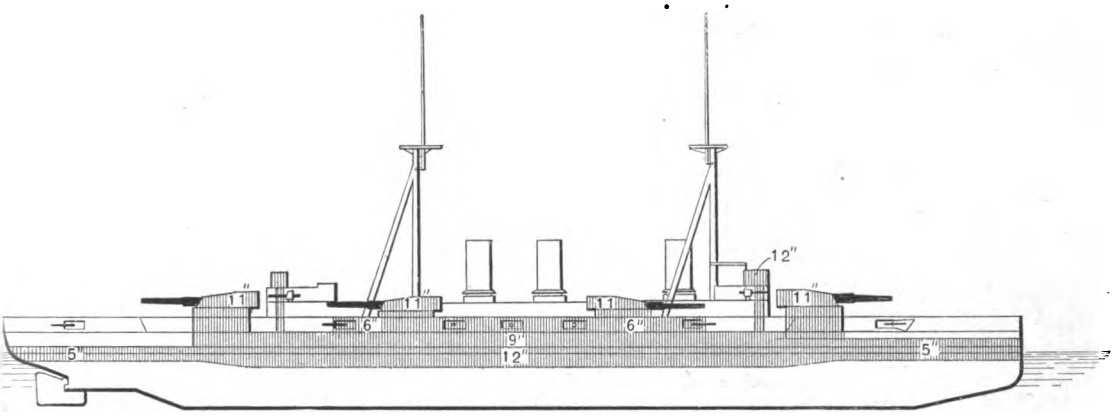
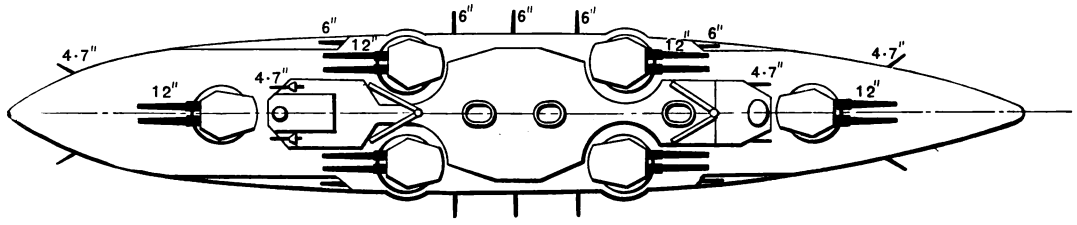
JAPAN.

BATTLESHIPS.

Kawachi. **Settsu.**

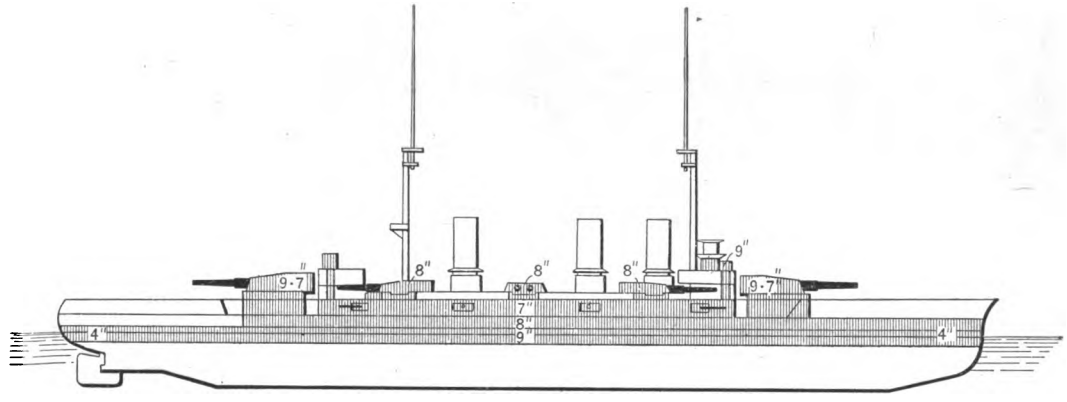


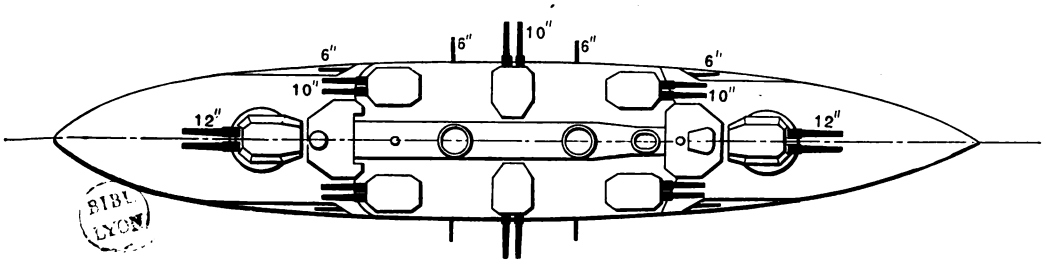


Length, 500 ft. ; 21,420 tons ; Speed, 20·5 knots ; Completed, 1912 ;
Armament, 12—12 in., 10—6 in., 8—4·7 in., 16 small.

See pages 182, 183.

Aki.





BIBL. LYON

Length, 400 ft. ; 19,800 tons ; Speed, 20·5 knots ; Completed, 1911 ;
Armament, 4—12 in., 12—10 in., 8—6 in., 8—12 pr., 8 small.

See page 181.

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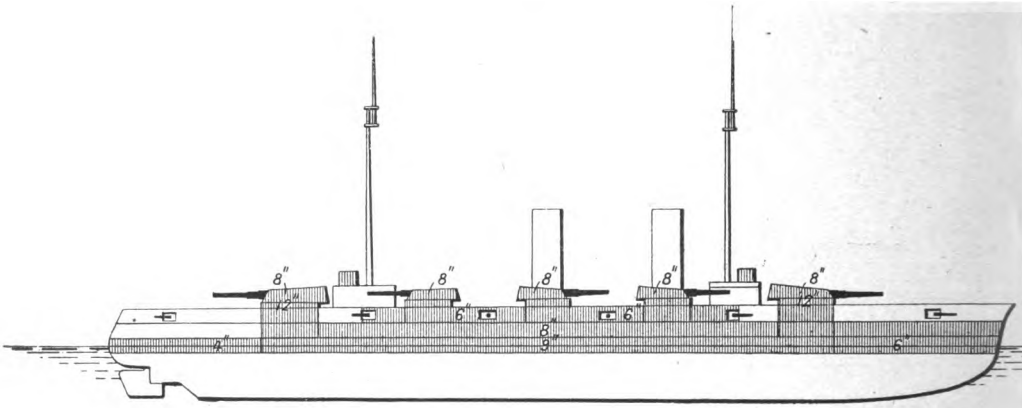
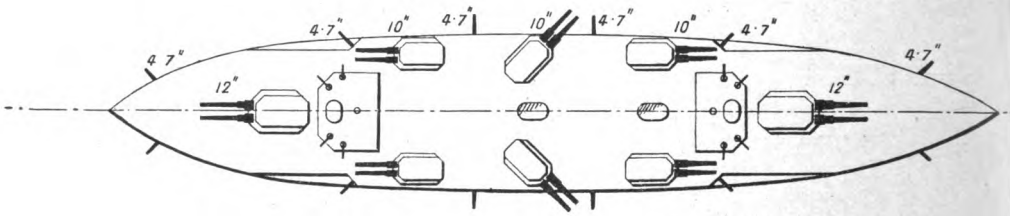
JAPAN.

BATTLESHIPS.

Satsuma.

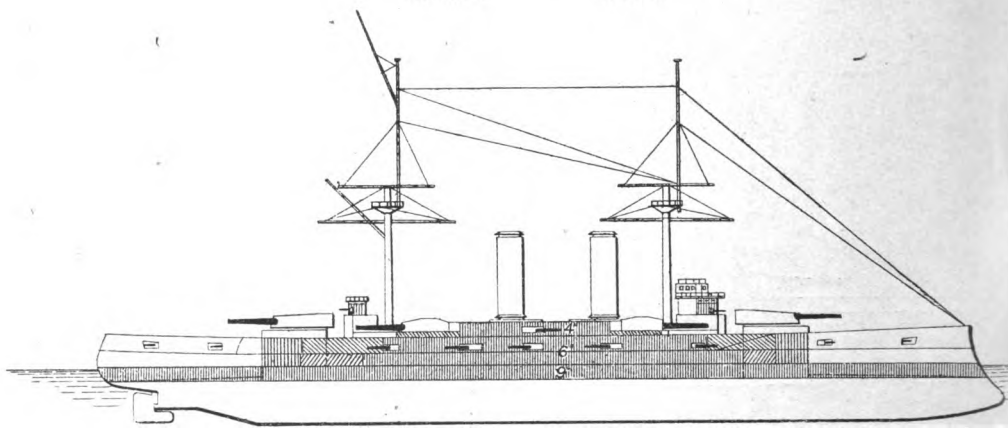


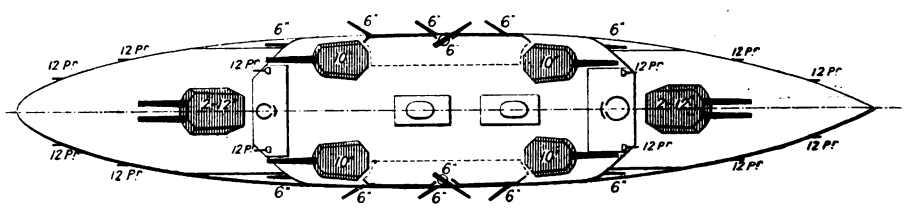


Length, 450 ft. ; 19,350 tons ; Speed, 18·5 knots ; Completed, 1910 ;
Armament, 4—12 in., 12—10 in., 12—4·7 in., 4—12 pr., 8 small.

See page 183.

Kashima. Katori.





Length, 420–425 ft. ; 15,950–16,400 tons ; Speed, 19·5 knots ; Completed, 1906 ;
Armament, 4—12 in., 4—10 in., 12—6 in., 12—12 pr., 11 small.

See page 182.

PLATE 51.

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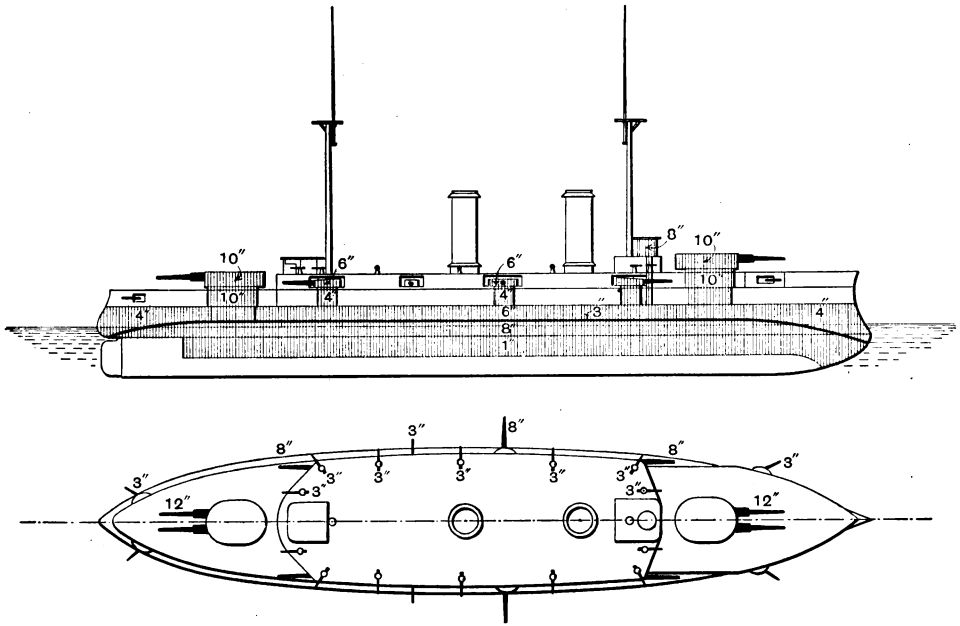
BIBI LYON

JAPAN.

BATTLESHIP.

Iwami (*Ex* Orel).



Length, 368 ft. ; 13,516 tons ; Speed, 18 knots ; Completed, 1904 ;
Armament, 4—12 in., 6—8 in., 24—3 in., and small.

See page 182.

PLATE 52.

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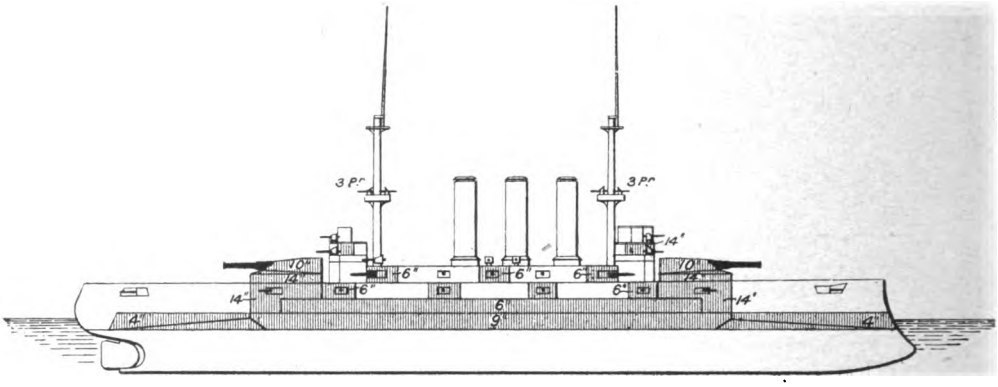
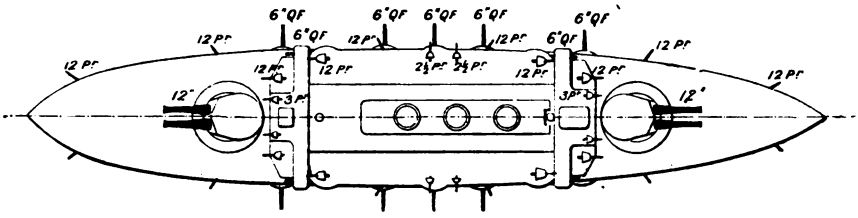
JAPAN.

BATTLESHIPS.

Asahi. **Shikishima.**



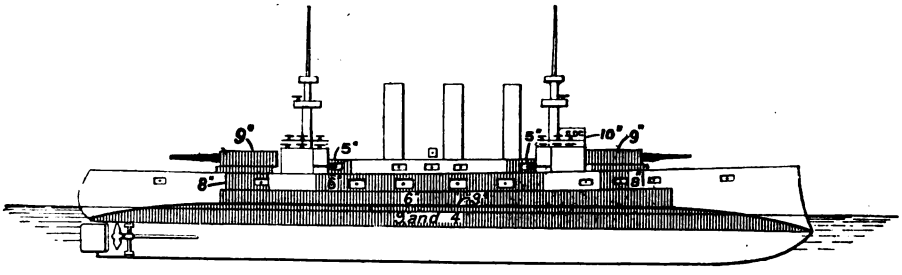


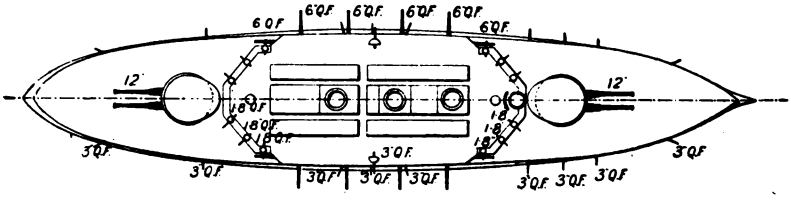
The "Asahi" has but two funnels.

Length, 400 ft.; 14,765 tons; Speed, 18—18·3 knots; Completed, 1899–1900;
Armament, 4—12 in., 14—6 in., 20—12 pr., 12 small.

See pages 181, 183.

Hizen (*late* Retvizan).





Length, 374 ft.; 12,700 tons; Speed, 18 knots; Completed, 1902;
Armament, 4—12 in., 12—6 in., 20—3 pr., 6 small.

See page 181.

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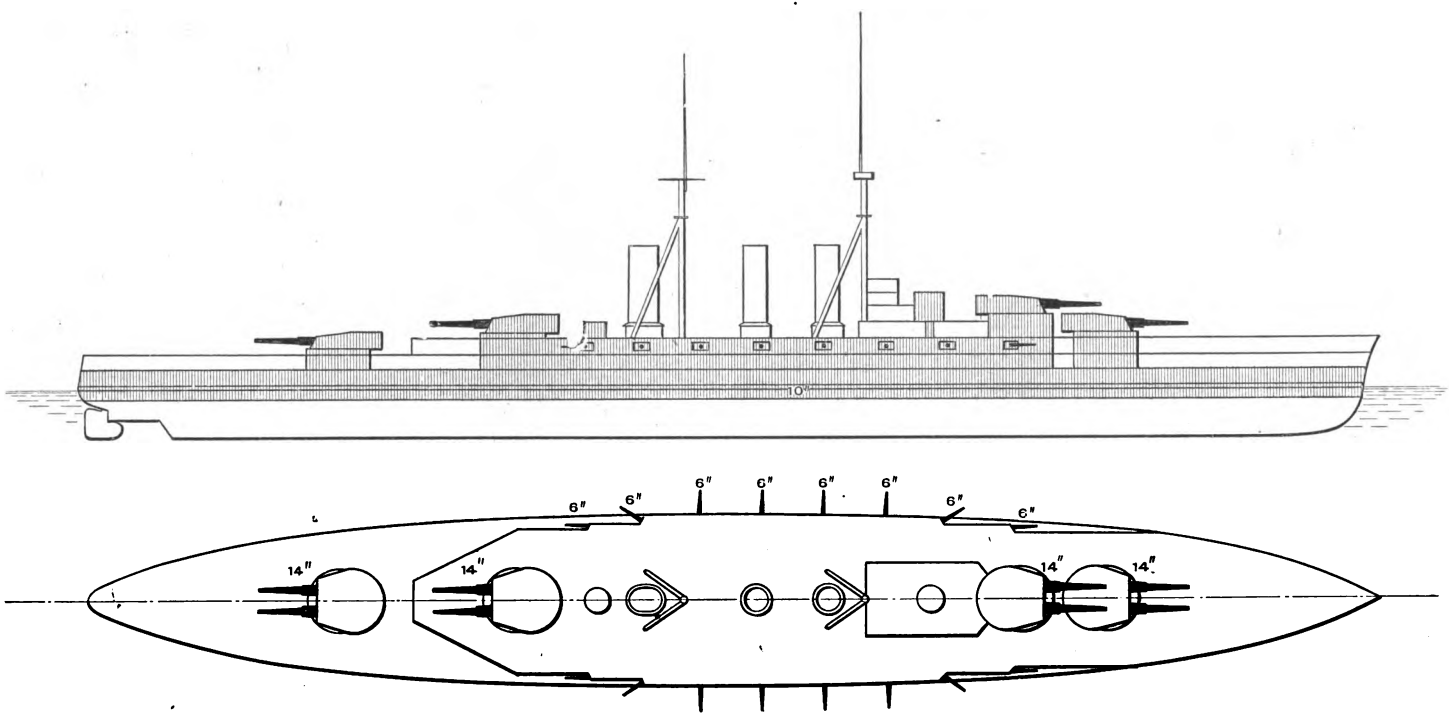
JAPAN.

BATTLE CRUISERS.

Kongo. Hiyei. Haruna. Kirishima.



Length, 704 ft. ; 27,500 tons ; Speed, 27 knots ; Completed, 1913--Building ;
Armament, 8—14 in., 16—6 in., 18 small.

See pages 181, 182.

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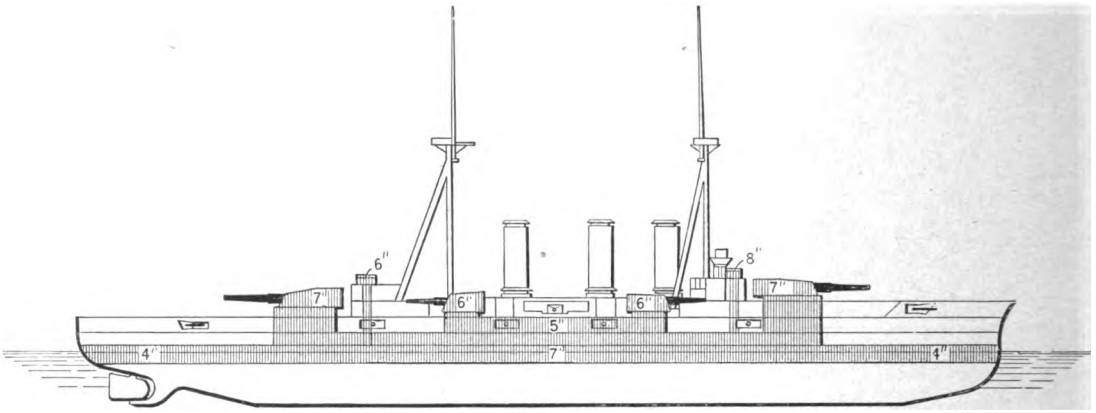
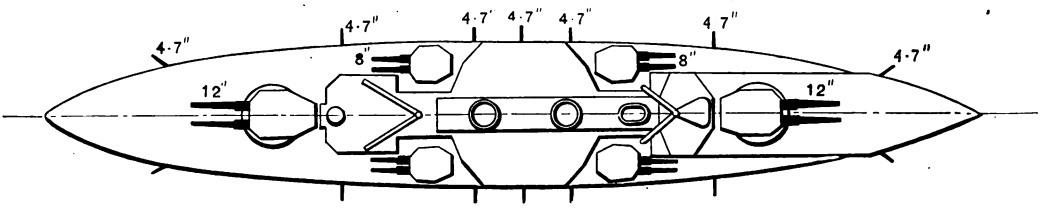
JAPAN.

ARMOURED CRUISER.

Ibuki. **Kurama.**

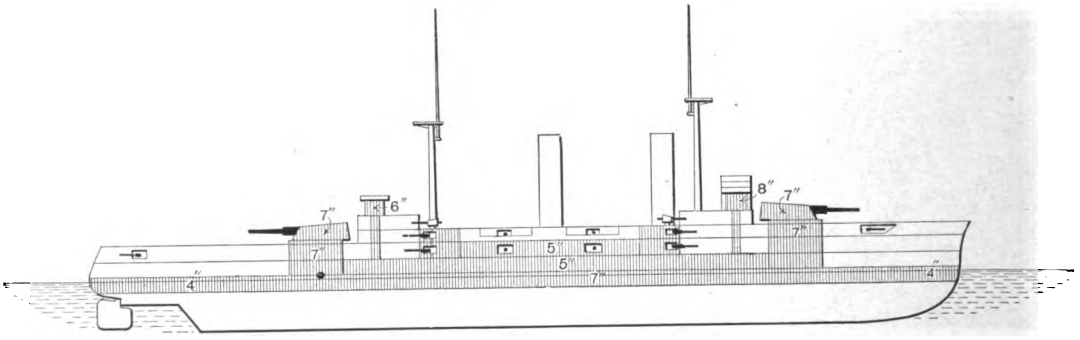


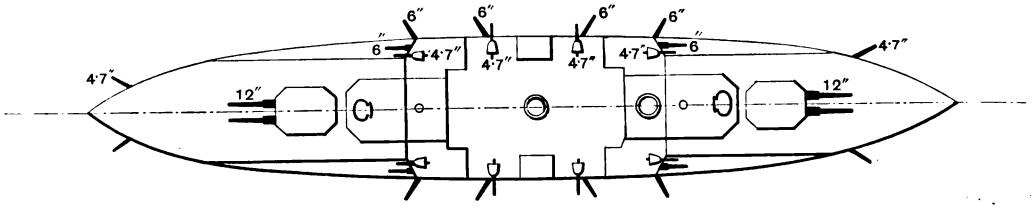


Length, 450 ft.; 14,020 tons; Speed, 22 knots; Completed, 1909—1911;
Armament, 4—12 in., 8—8 in., 14—4·7 in., 9 small.

See pages 181, 182.

Ikoma. **Tsukuba.**





Length, 440 ft.; 13,750 tons; Speed, 21 knots: Completed, 1907;
Armament, 4—12 in., 12—6 in., 12—4·7 in., 8 small.

See pages 182, 183.

PLATE 55.

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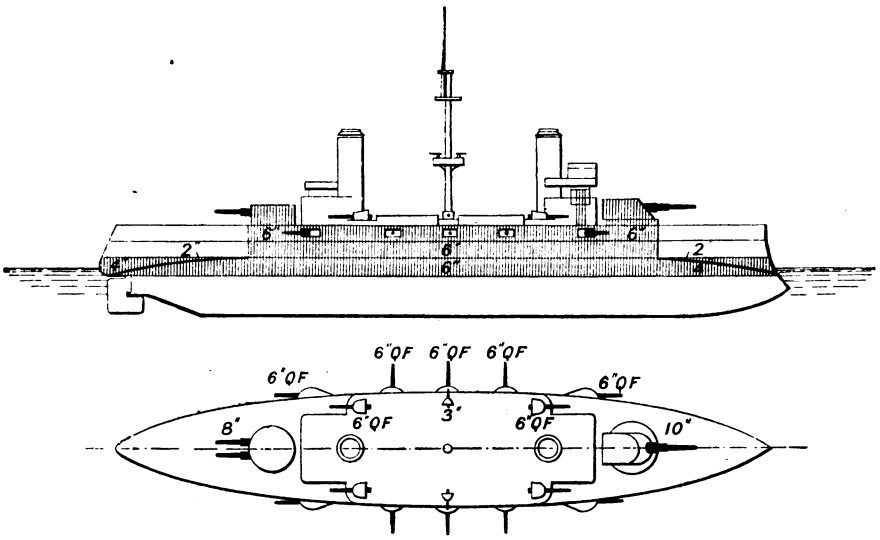
JAPAN.

ARMOURED CRUISERS.

Kasuga. **Nisshin.**

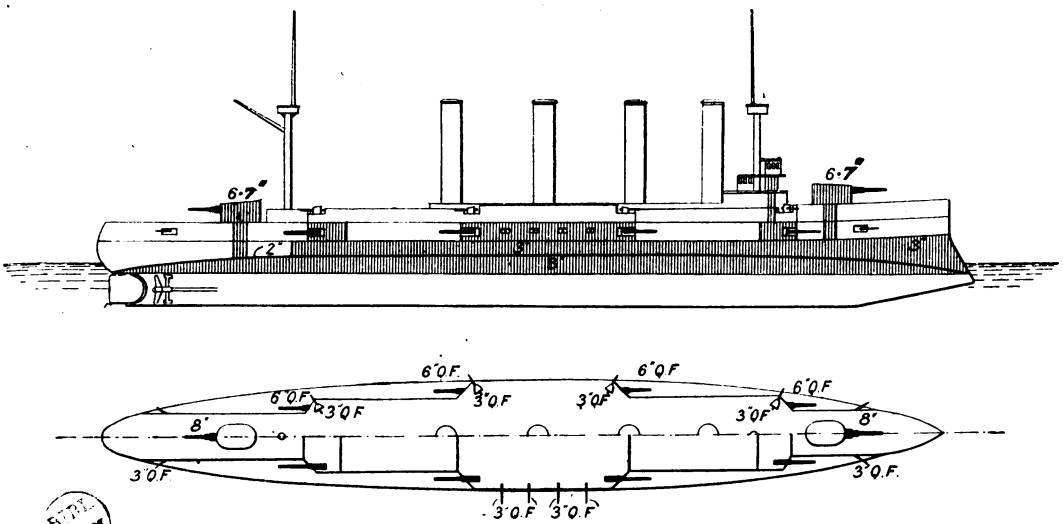


The Nisshin has 2-8 in. guns in fore barbette.

Length, 344 ft. ; 7630 tons ; Speed, 20 knots ; Completed, 1904 ;
Armament, 1—10 in., 2—8 in., 14—6 in., 10—3 in., 8 small.

See pages 182, 183.

Aso (*iate* **Bayan**).



Length, 443 ft. ; 7726 tons ; Speed, 22 knots ; Completed, 1902 ;
Armament, 2—8 in., 8—6 in., 22 small.

See page 181.

BIBL. LYON

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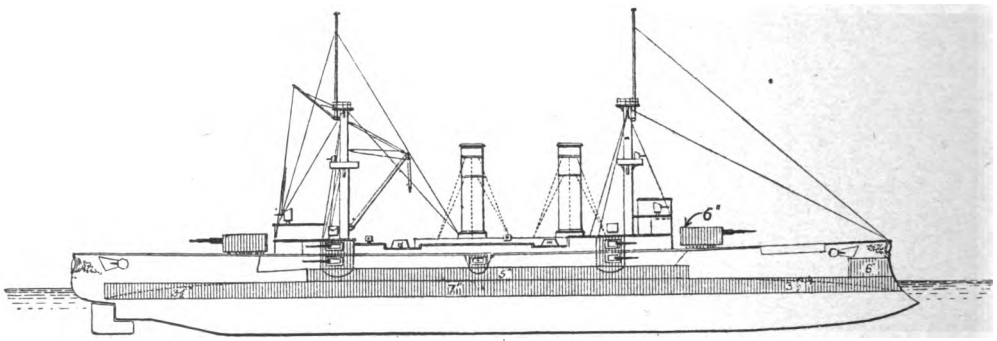
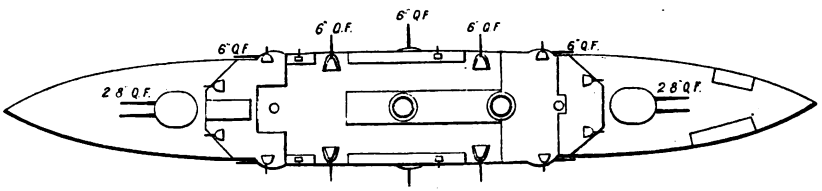
JAPAN.

ARMOURED CRUISERS.

Asama. **Tokiwa.**



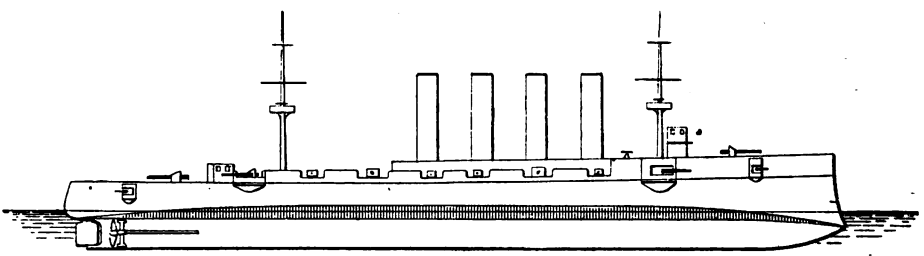


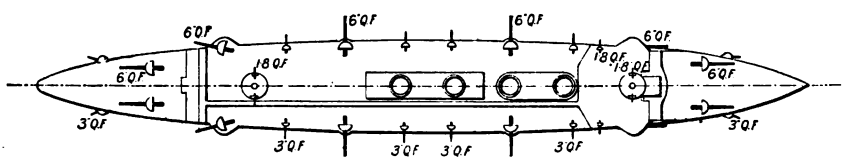
Length, 408 ft.; 9850 tons; Speed, 22·1—23 knots; Completed, 1899;
Armament, 4—8 in., 14—6 in., 12—12 pr., 8 small.

See pages 181, 183.

CRUISER.

Sōya (*late* **Varyag**). (Retroceded to Russia.)





Length, 420 ft.; 6500 tons; Speed, 23 knots; Completed, 1900;
Armament, 12—6 in., 12—12 pr., 6 small.

See pag. 193.

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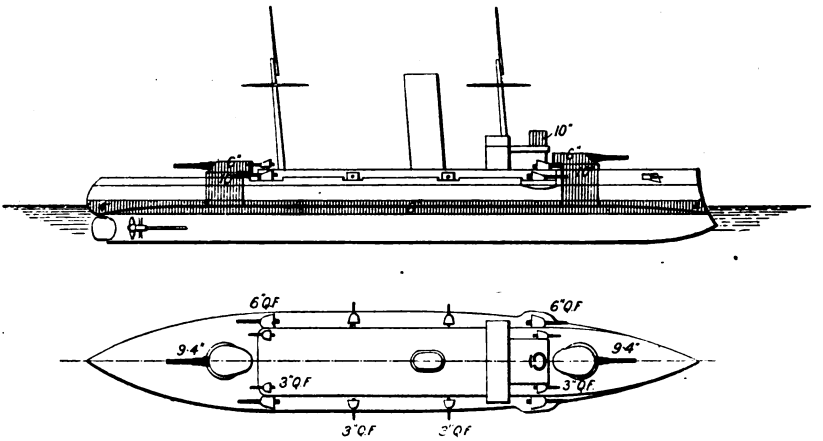
NETHERLANDS.

COAST DEFENCE SHIPS.

De Ruyter. Hertog Hendrik. Koningin Regentes. Marten Tromp.



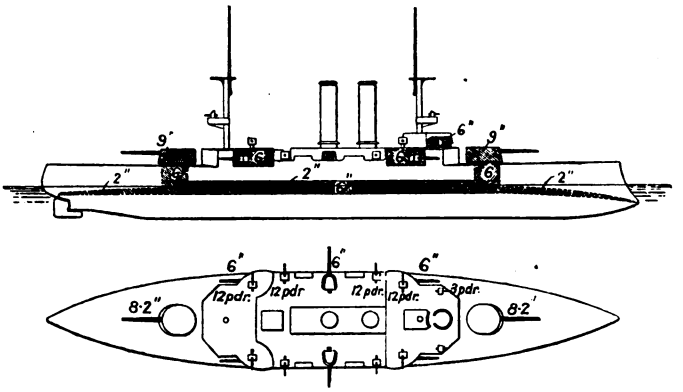
Length, 317 ft.; 5014—5211 tons; Speed, 16·5 knots; Completed, 1902—1906; Armament, 2—9·4 in., 4—6 in., 10—3 in., 4 small.

See page 186.

NORWAY.

COAST DEFENCE SHIPS.

Norge. Eidsvold.



BIBL. LYON

Length, 290 ft.; 3847 tons; Speed, 16·5 knots; Completed, 1901; Armament, 2—8·2 in., 6—6 in., 8—12 pr., 6 small.

See page 188.

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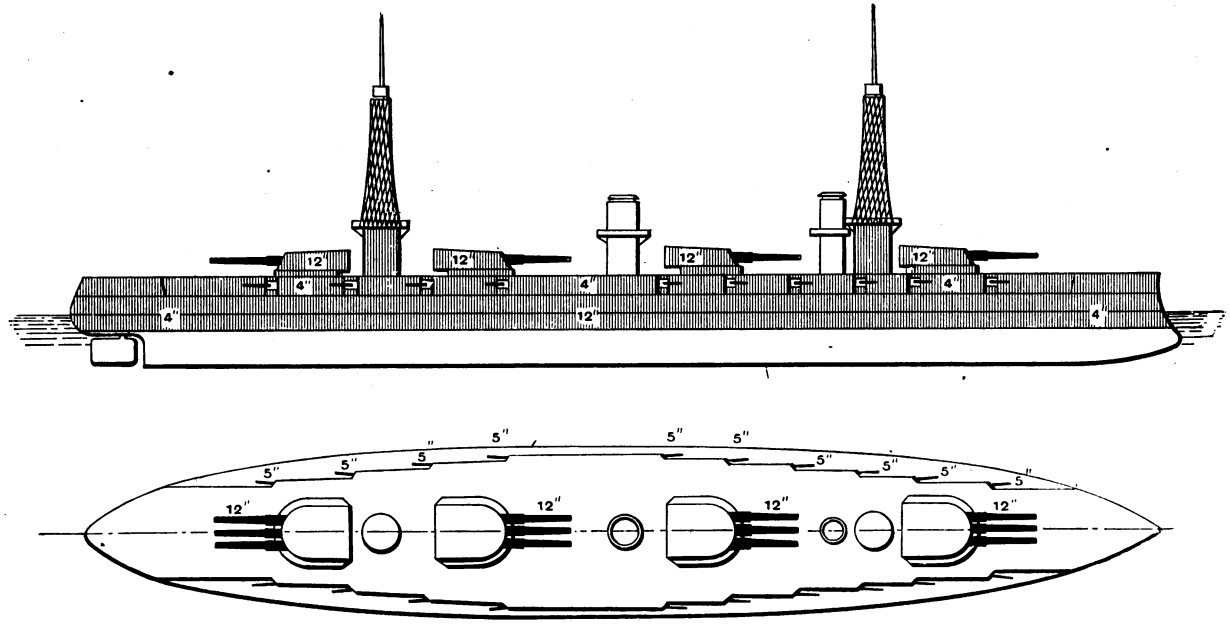
RUSSIA.

BATTLESHIPS.

Imperatritsa Maria. **Imperator Alexander III.** **Imperatritsa Ekaterina II.**



Length, 551 ft.; 22,500 tons; Speed, 21 knots;
Armament, 12—12 in., 20—5 in.

See pages 190, 191.

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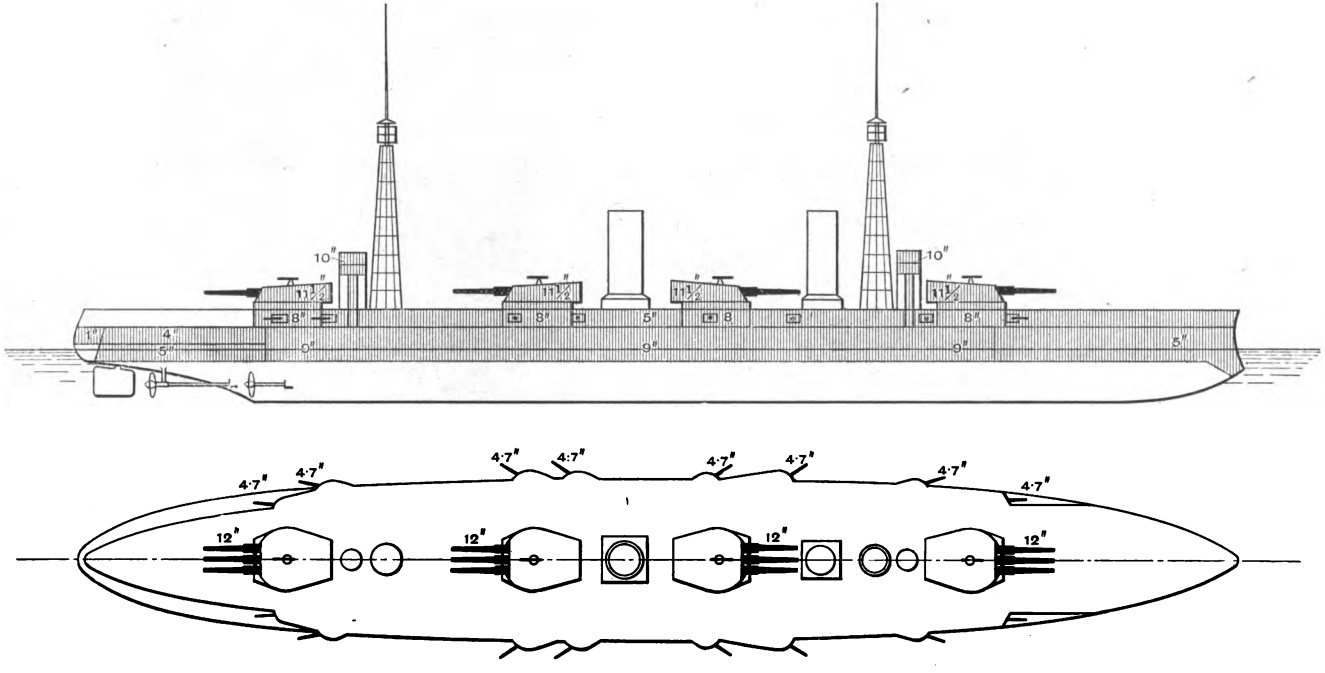
BIBL. LYON

RUSSIA.

BATTLESHIPS.

Gangut. Petropavlovsk. Poltava. Sevastopol.



Length, 590 ft. ; 23,000 tons ; Speed, 23 knots ;
Armament, 12—12 in., 16—4·7 in., 4—3 pr. 8 small.

See pages 190, 191.

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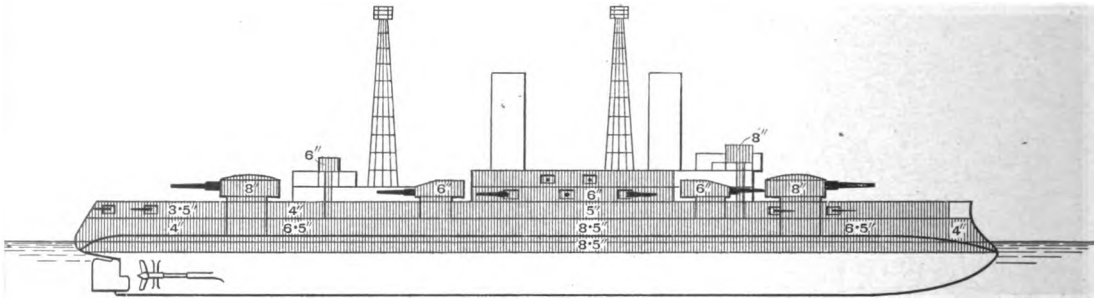
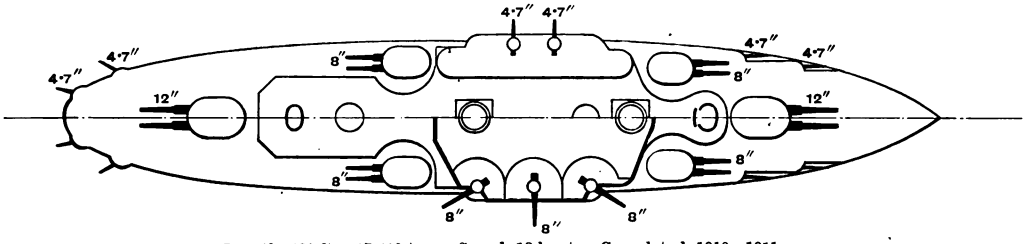
RUSSIA.

BATTLESHIPS.

Andrei Pervozvannyi. **Imperator Pavel.**

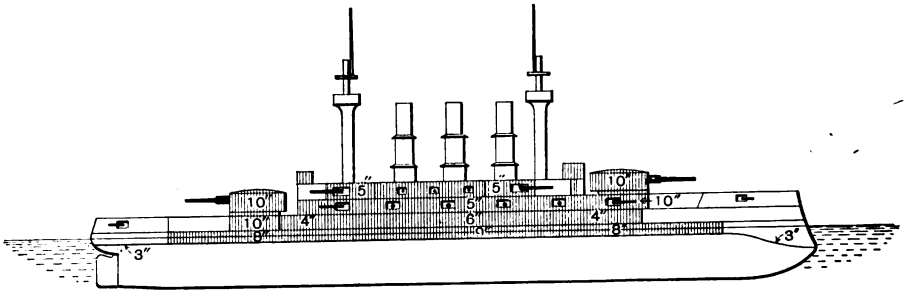


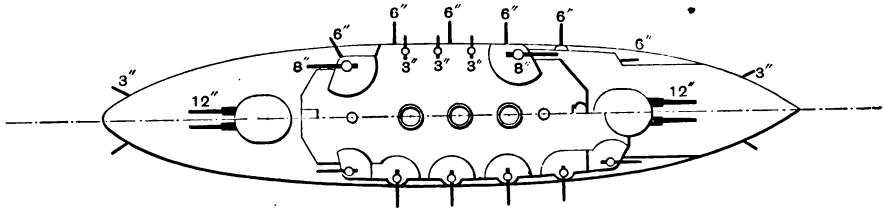


Length, 430 ft. ; 17,400 tons ; Speed, 18 knots ; Completed, 1910—1911 ;
Armament, 4—12 in., 14—8 in., 12—4·7 in., 14 small.

See pages 190, 191.

Evstafi. **Ioann Zlatoust.**





Length, 372 ft. ; 12,733 tons ; Speed, 16 knots ; Completed, 1910–11 ;
Armament, 4—12 in., 4—8 in., 12—6 in., 14—3 in., 18 small.

See page 190.

PLATE 61.

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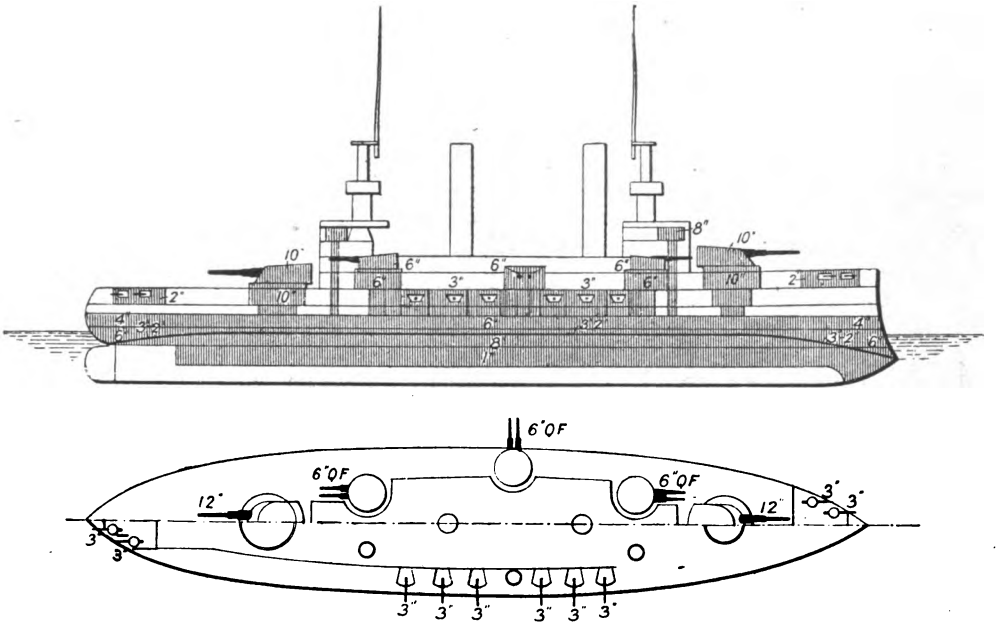
RUSSIA.

BATTLESHIPS.

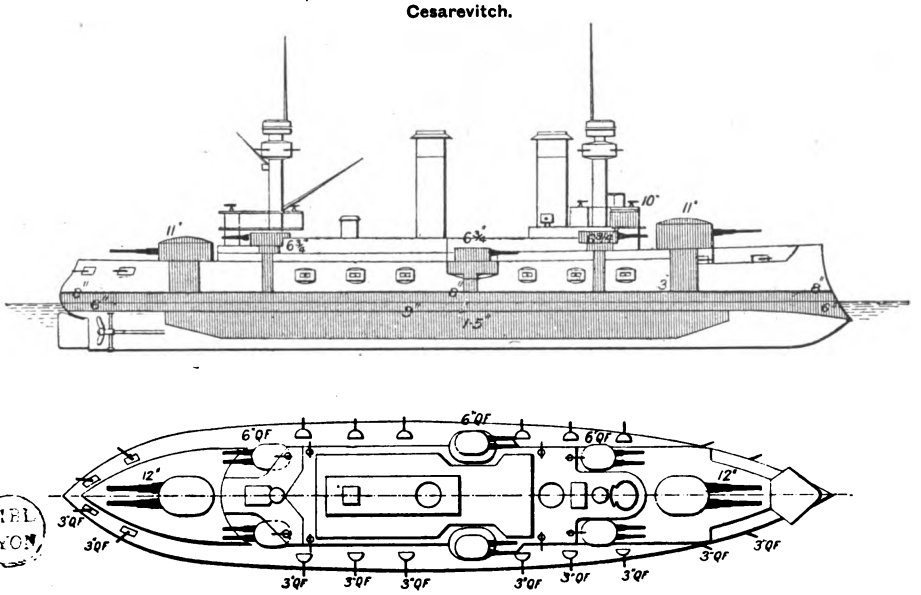
Slava.



Length, 367 ft. ; 13,516 tons ; Speed, 18 knots ; Completed, 1905 ;
Armament, 4—12 in., 12—6 in., 34—3 in., and small.

See page 191.

Cesarevitch.



Length, 389 ft. ; 12,912 tons ; Speed, 19·6 knots ; Completed, 1903 ;
Armament, 4—12 in., 12—6 in., 20—3 in., 12 small.

See page 190.

BIBL LYON

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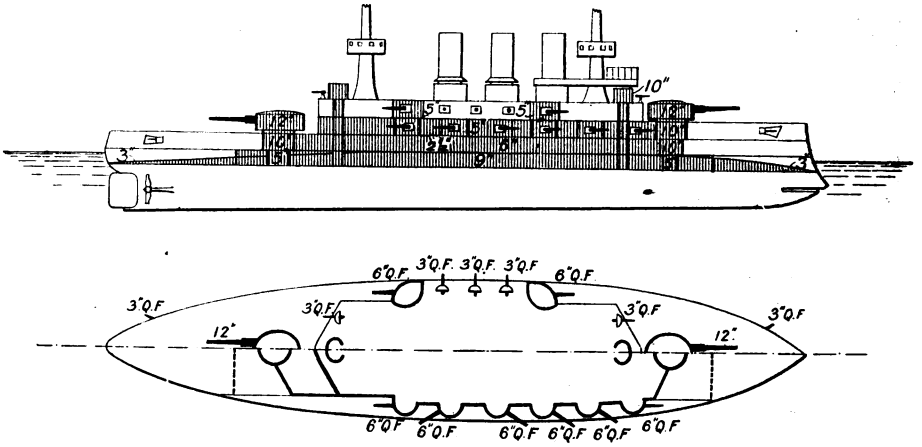
RUSSIA.

BATTLESHIPS.

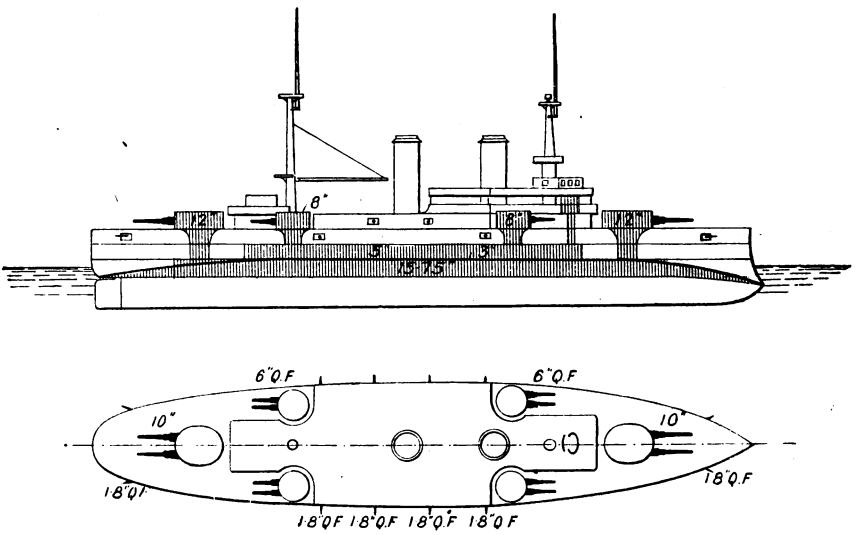
Panteleimon.



Length, 372 ft. ; 12,582 tons ; Speed, 17 knots ; Completed, 1902 ;
Armament, 4—12 in., 16—6 in., 14—3 in., 14 small.

See page 191.

Rostislav.



Length, 341 ft. ; 8880 tons ; Speed, 16 knots ; Completed, 1900 ;
Armament, 4—10 in., 8—6 in. ; 16 small.

See page 191.

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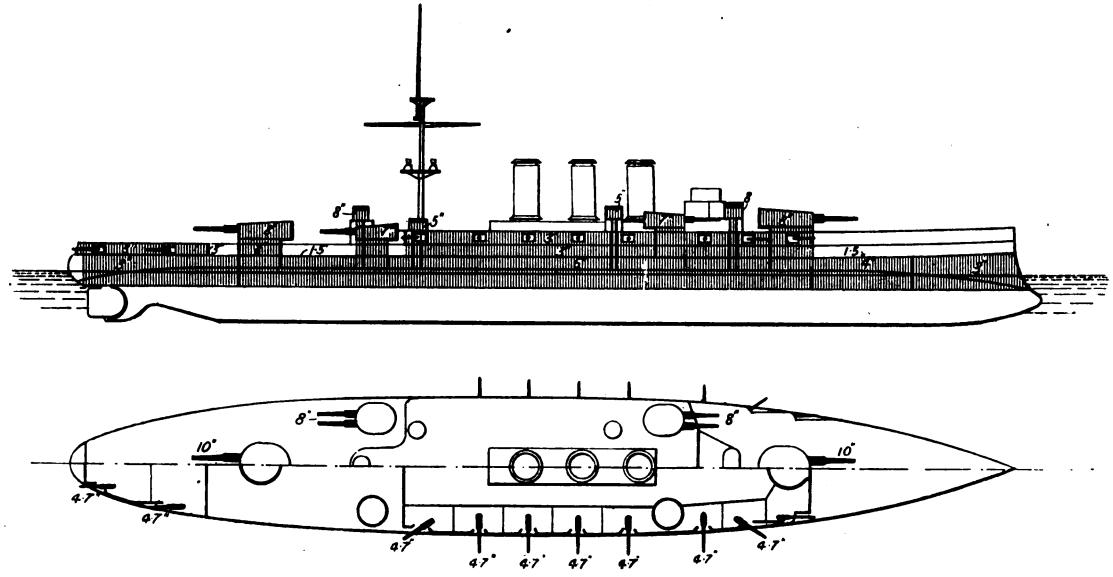
BIBL LYON

RUSSIA.

ARMOURED CRUISER.

Rurik.



Length, 490 ft.; 15,170 tons; Speed, 21 knots; Completed, 1907;
Armament, 4—10 in., 8—8 in., 20—4·7 in., 14 small.

See page 191.

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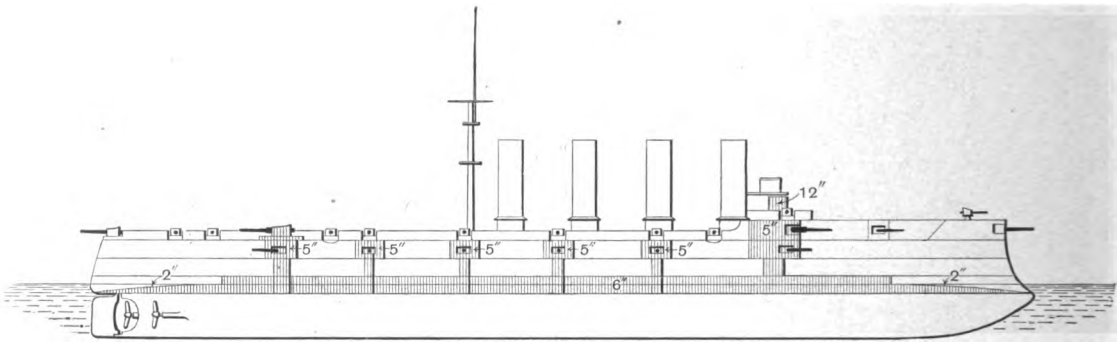
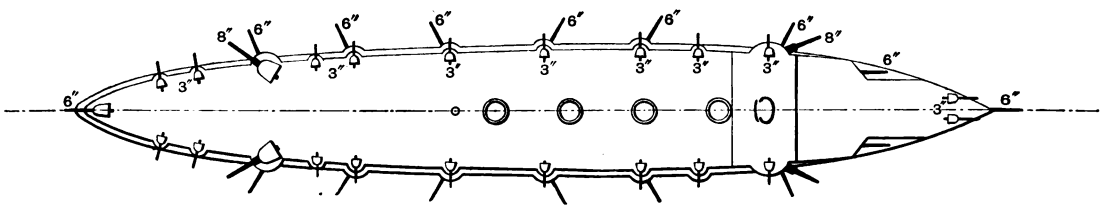
RUSSIA.

ARMOURED CRUISERS.

Gromoboi.

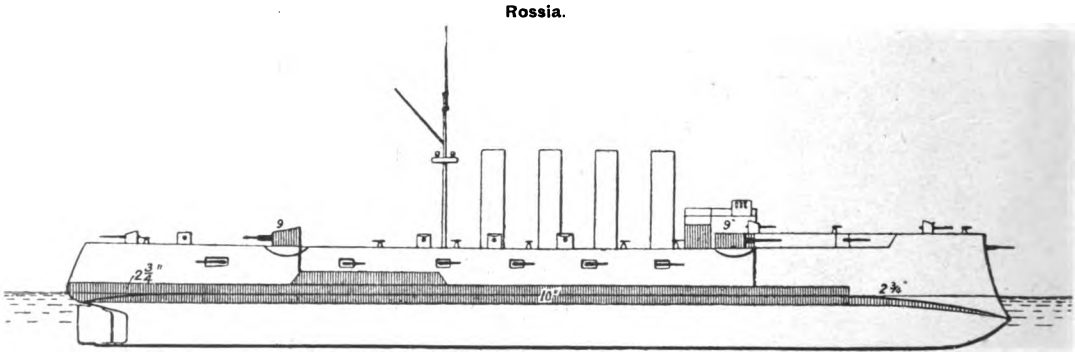


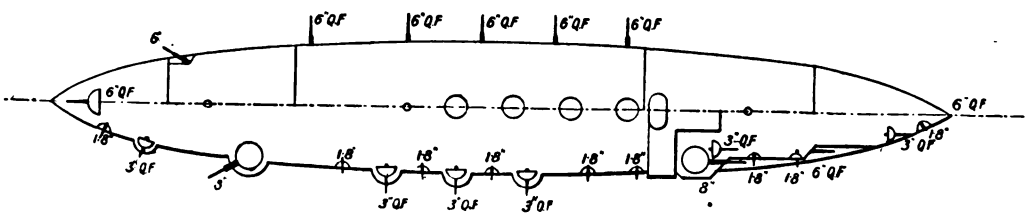


Length, 473 ft. ; 13,220 tons ; Speed, 20 knots ; Completed, 1900 ;
Armament, 4—8 in., 22—6 in., 20—3 in., 11 small.

See page 190.

Rossia.





Length, 480 ft. ; 12,195 tons ; Speed, 20 knots ; Completed, 1897 ;
Armament, 4—8 in., 22—6 in., 12—3 in., 20 small.

See page 191.

PLATE 65.

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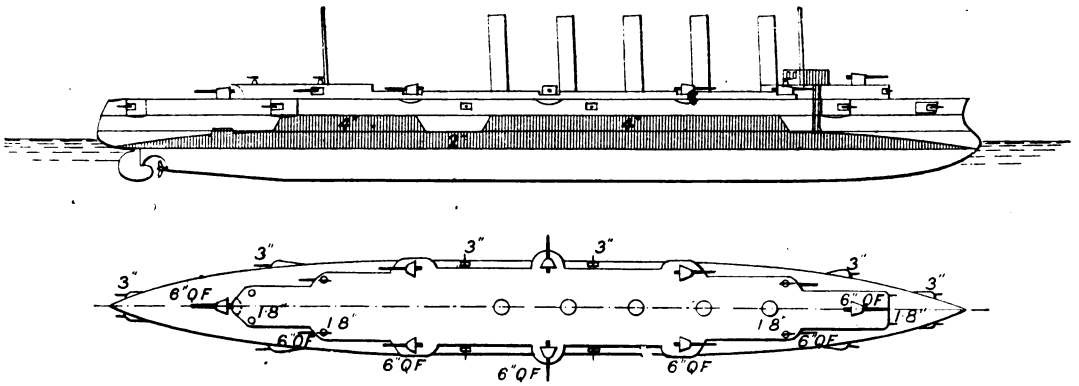
RUSSIA.

CRUISERS.

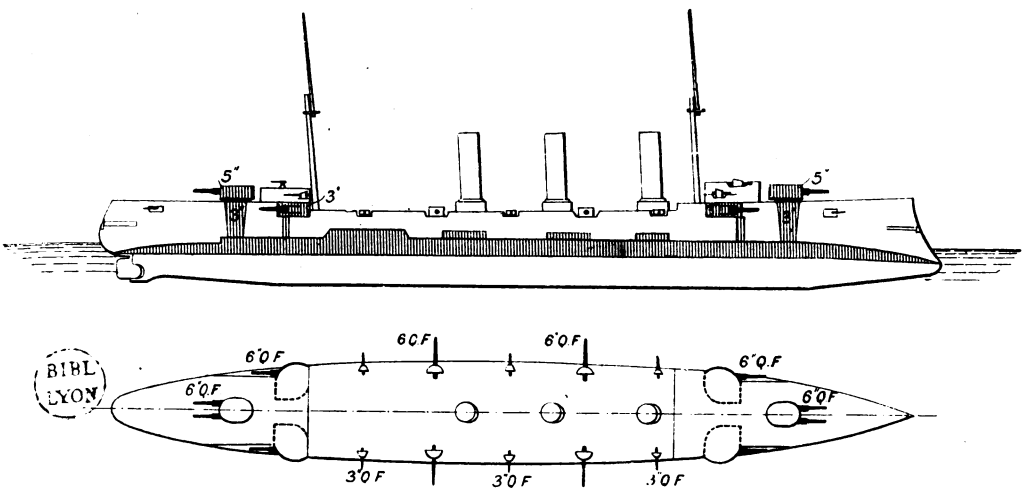
Askold.



Length, 426 ft. ; 5905 tons ; Speed, 23·8 knots ; Completed, 1901 ;
Armament, 12—6 in., 12—3 in., 14 small.

See page 192.

Bogatyr. Oleg.



BIBL LYON

Length, 417–440 ft. ; 6675 tons ; Speed, 23–24 knots , Completed, 1902–1904 ;
Armament, 12—6 in., 12--3 in., 14 small.

See pages 192, 193.

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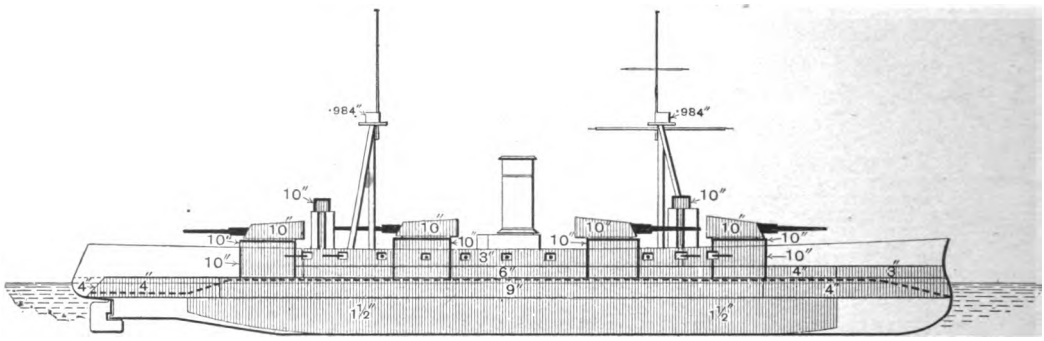
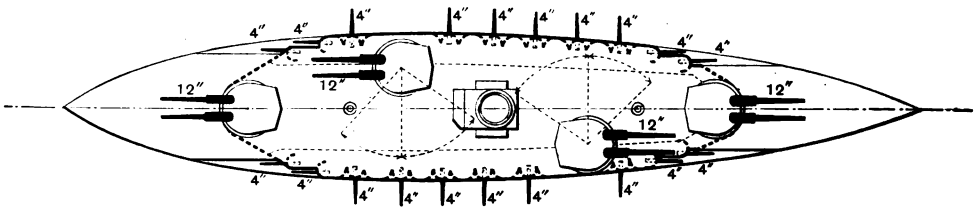
SPAIN.

BATTLESHIPS.

Alphonso XIII. **España.** **Jaime I.**



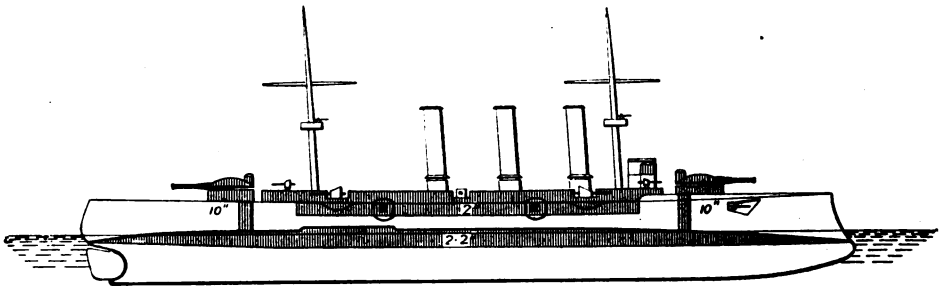


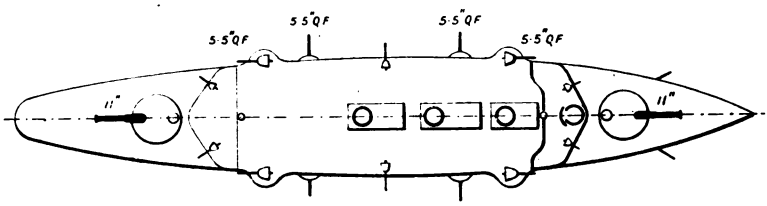
Length, 435 ft. ; 15,460 tons ; Speed, 19·5 knots ; Completed, 1913–1915 ;
Armament, 8—12 in., 20—4 in., 6 small.

See page 194.

ARMOURED CRUISER.

Emperador Carlos V.





Length, 380 ft. ; 9089 tons ; Speed, 20 knots ; Completed, 1898 ;
Armament, 2—11 in., 8—5·5 in., 4—3·9 in., 22 small.

See page 194.

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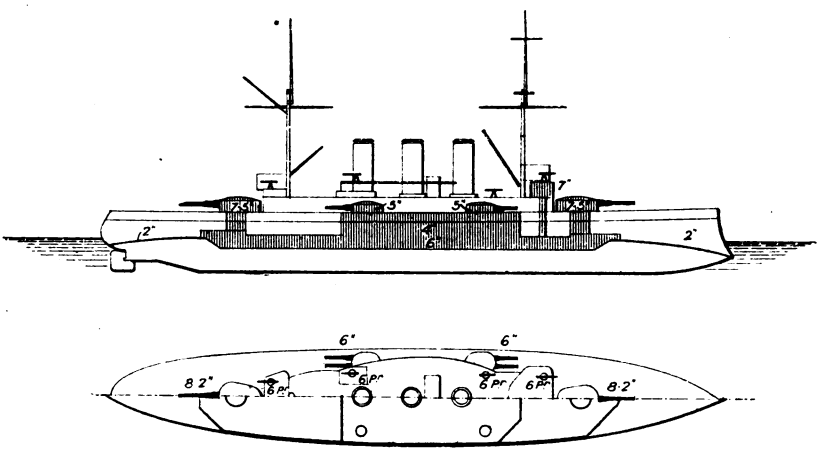
SWEDEN.

BATTLESHIP.

Oscar II.

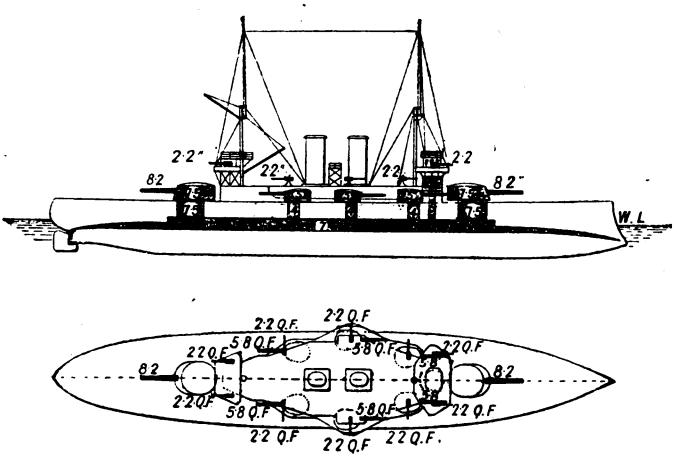


Length, 314 ft. ; 4203 tons ; Speed, 18 knots ; Completed, 1907 ;
Armament, 2—8·2 in., 8—6 in., 14 small.

See page 166.

COAST DEFENCE SHIPS.

Aeran. **Manligheten.** **Tapperheten.** **Wasa.**



BIBL LYON

Length, 287 ft. ; 3612 tons ; Speed, 16·5–17·2 knots ; Completed, 1902–1906 ;
Armament, 2—8·2 in., 6—5·8 in., 14 small.

See page 196.

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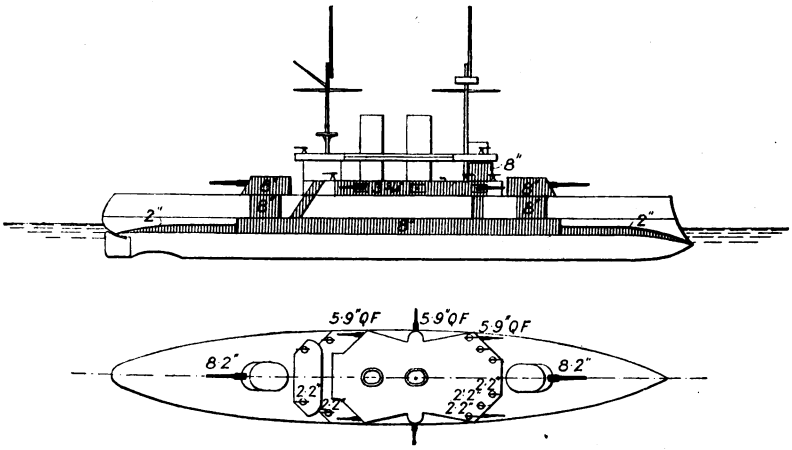
SWEDEN.

COAST DEFENCE SHIP.

Dristigheten.

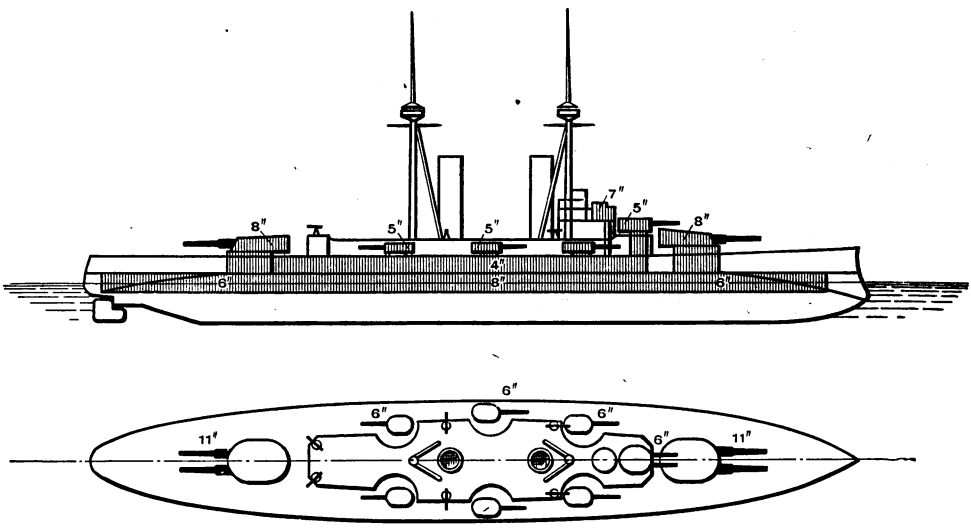


Length, 285 ft. ; 3445 tons ; Speed, 16·5 knots ; Completed, 1901 ;
Armament, 2—8·2 in., 6—5·9 in., 12 small.

See page 196.

ARMOURED CRUISER.

Sverige.



Length, 390 ft. ; 7,100 tons ; Speed, 22 knots ; Building ;
Armament, 4·11 in. ; 8—6 in. ; 6—12 pr.

See page 196.

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TURKEY.

BATTLE-CRUISER.

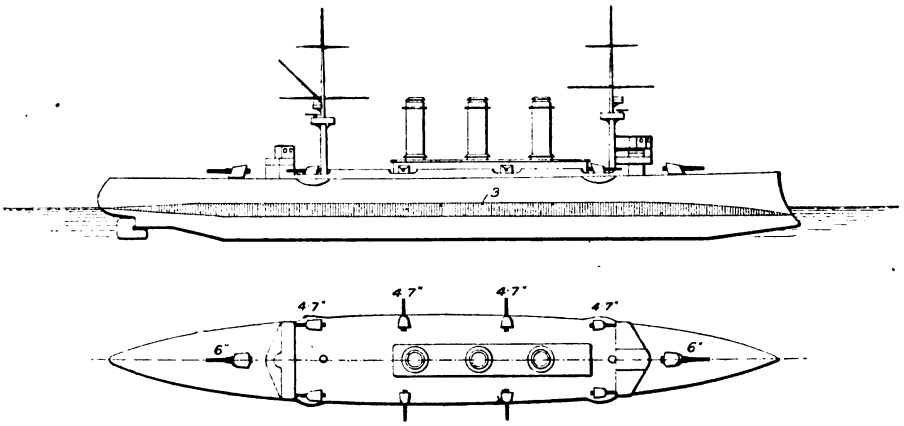
Yavuz Selim (*ex* Goeben).

Length, 610 ft. ; 22,640 tons ; Speed, 28·5 knots ; Completed, 1912 ;
Armament, 10—11 in., 12—5·9 in., 12—3·4 in.

See Plate 41 and *page* 198.

CRUISERS.

Hamidieh.



Length, 331—340 ft. ; 3432—3800 tons ; Speed, 22·2 knots ; Completed, 1904 ;
Armament. 2—6 in., 8—4·7 in., 12 small.

See page 199.

Midillieh (*ex* Breslau).

Length, 446 ft. 3 in. ; 4500 tons ; Speed, 27·5 knots ; Completed, 1912 ;
Armament, 12—4·1 in.

See Plate 42 (German Strassburg class) and *page* 199.

BIBL LYON

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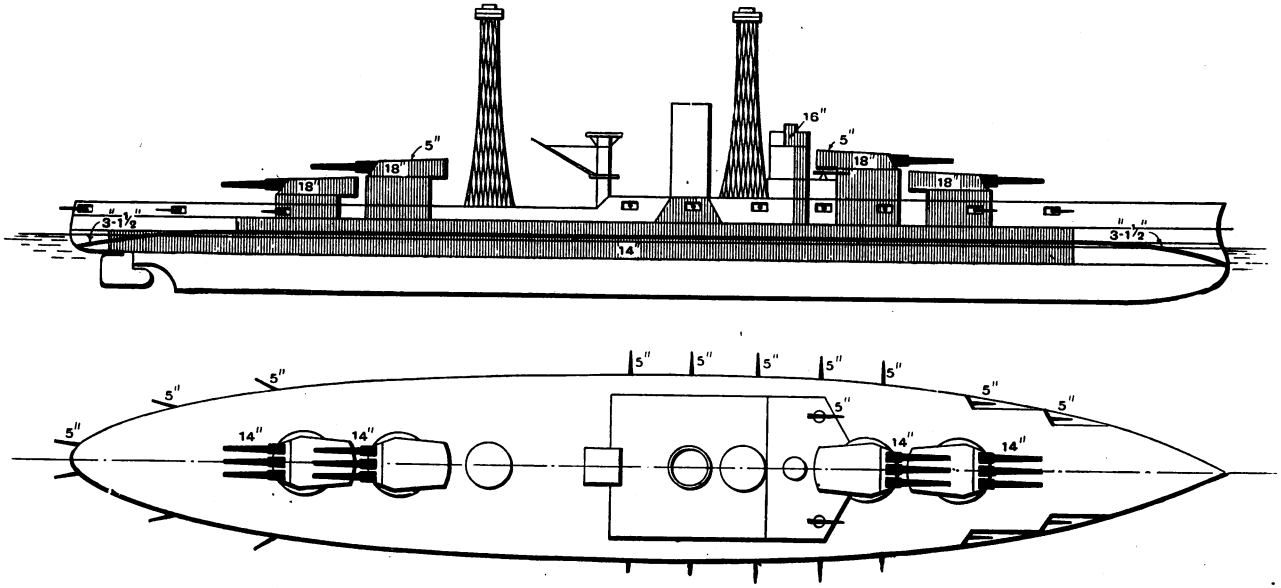
UNITED STATES.

BATTLESHIPS.

Pennsylvania. **Arizona.** **New Mexico.*** **Idaho.*** **Mississippi.***



Length, 600 ft.; 31,400 tons; Speed, 21 knots; Building;
Armament, 12—14 in., 22—5 in., 10 small.

See pages 200, 201, 202.

* The New Mexico (originally named California), Idaho, and Mississippi will be of 32,000 tons, and twelve 5-in. guns will be grouped in a central position on a higher level than in the Pennsylvania and Arizona.

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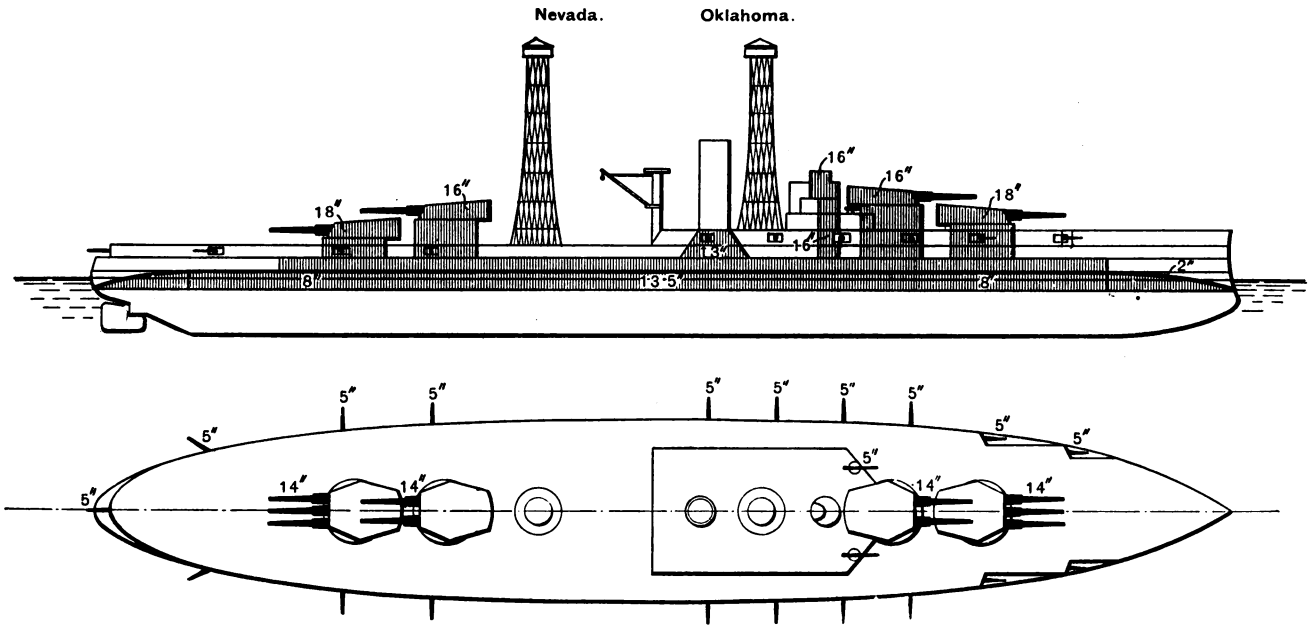
UNITED STATES.

BATTLESHIPS.



Length, 575 ft.; 27,500 tons; Speed, 20·5 knots; Completed, 1915;
Armament. 10—14 in.; 21—5 in.; 10 smaller.

See pages 201, 202.

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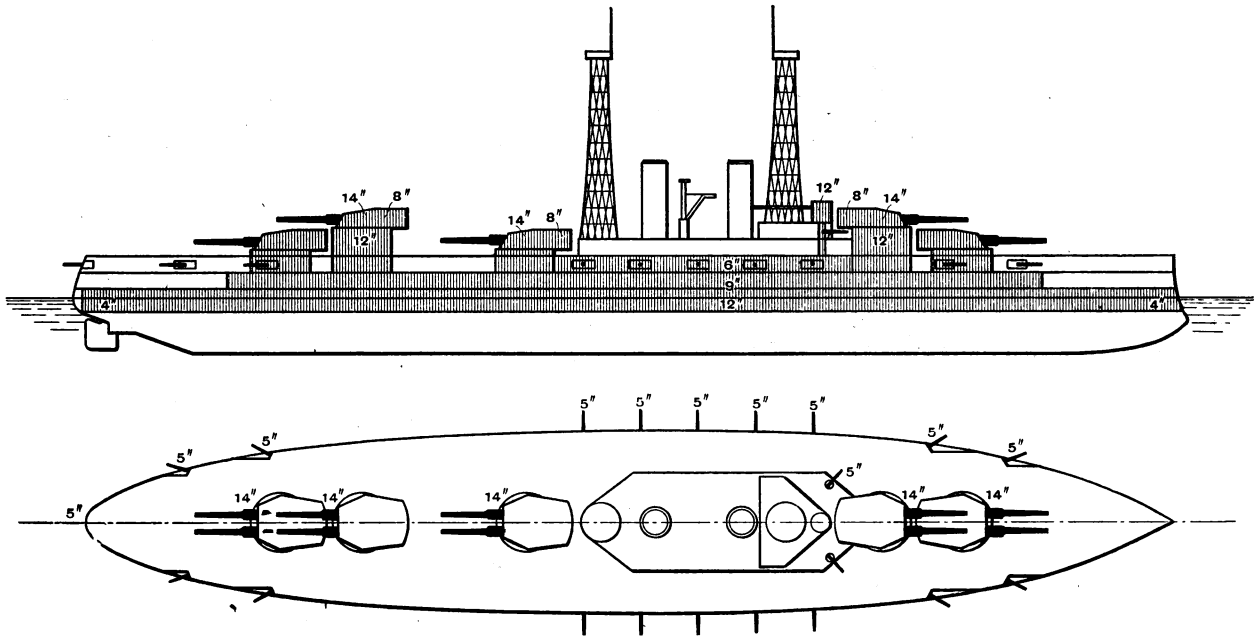
UNITED STATES.

BATTLESHIPS.

New York. **Texas.**



Length, 573 ft. ; 27,000 tons ; Speed, 21 knots ; 1914 ;
Armament, 10—14 in., 21—5 in. ; 10 small.

See pages 202, 203.

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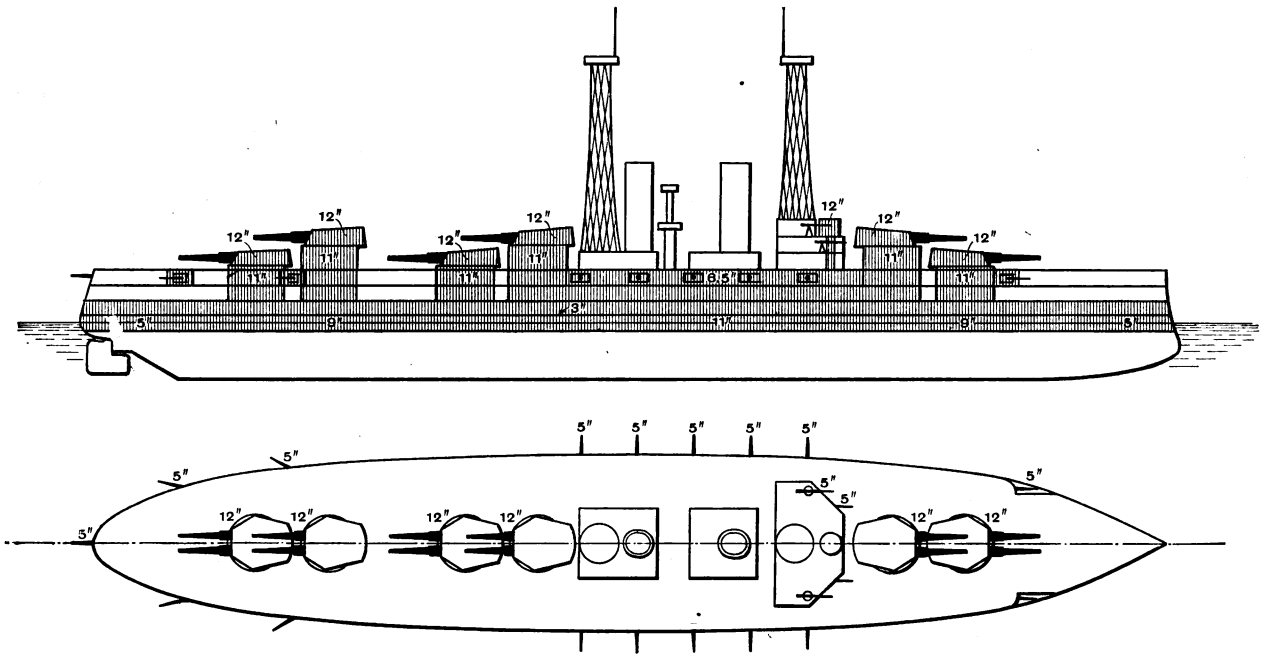
UNITED STATES.

BATTLESHIPS.

Arkansas. **Wyoming.**



Length, 554 ft. ; 26,000 tons ; Speed, 21 knots ; Completed, 1912 ;
Armament, 12—12 in., 21—5 in., 4—3 pr. ; 4 small.

See pages 200, 203.

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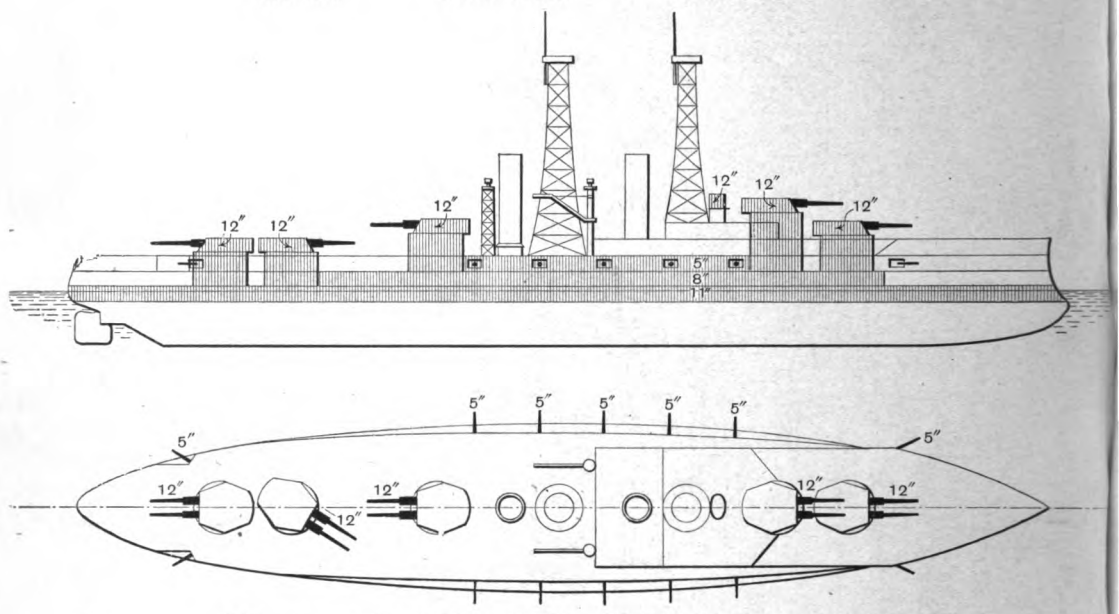
UNITED STATES.

BATTLESHIPS.

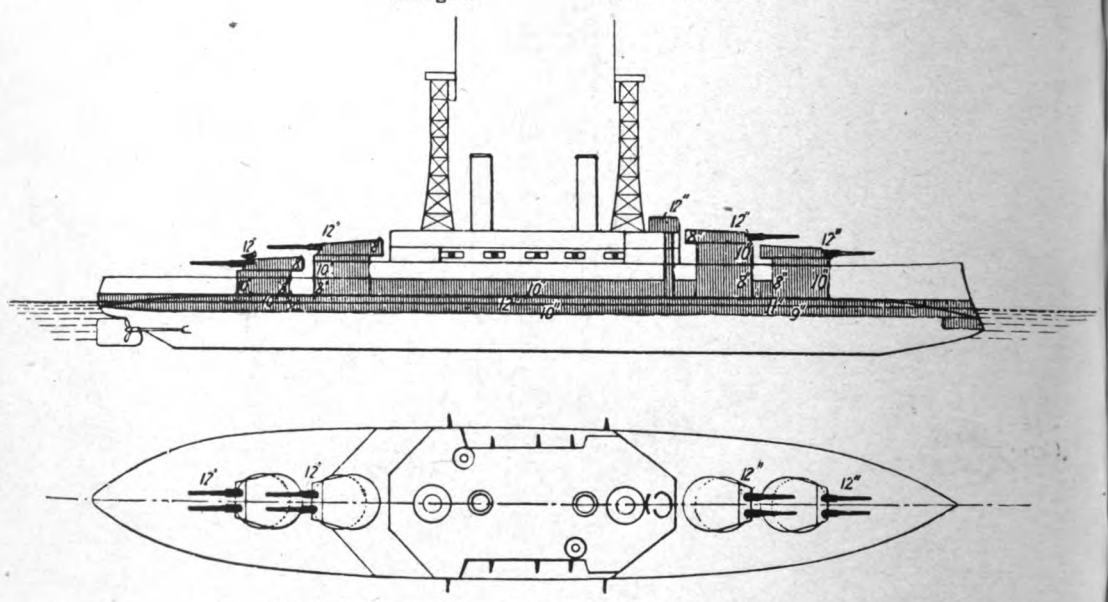
Delaware. North Dakota. Florida. Utah.



Delaware North Dakota	Length, 510 ft. ; 20,000 tons ; Speed, 21·5 knots ; Completed, 1910 ; Armament, 10—12 in., 14—5 in., 16 small.
Florida Utah	Length, 510 ft. ; 21,825 tons ; Speed, 21-21·6 knots ; Completed, 1911 ; Armament, 10—12 in., 16—5 in., 10 small.

See pages 200, 202, 203.

Michigan. South Carolina.



Length, 450 ft. ; 16,000 tons ; Speed, 18·8 knots ; Completed, 1909 ;
Armament, 8—12 in., 22—3 in., 14 small.

See pages 201, 202.

PLATE 75.

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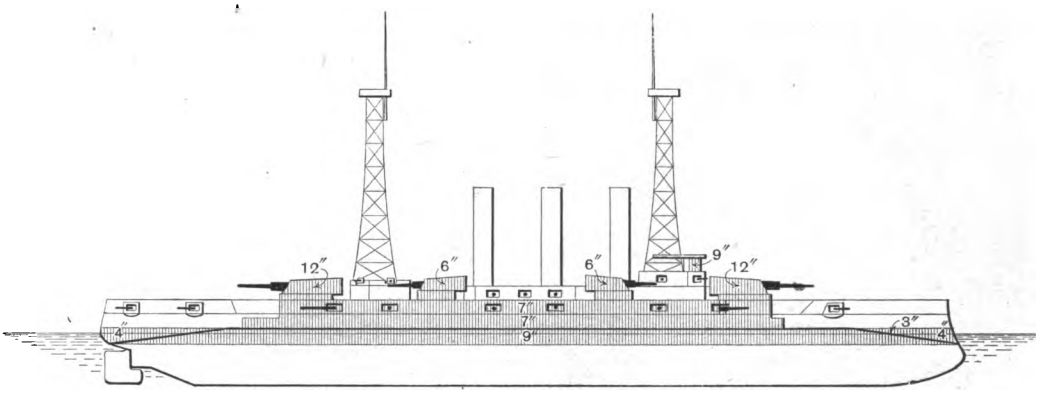
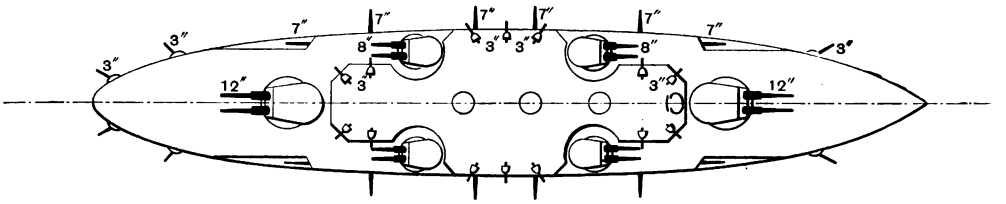
UNITED STATES.

BATTLESHIPS.

Connecticut. Kansas. Louisiana. Minnesota. New Hampshire. Vermont.



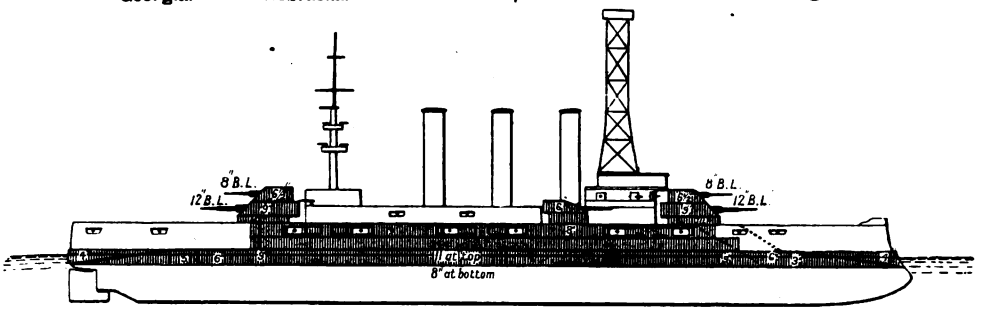


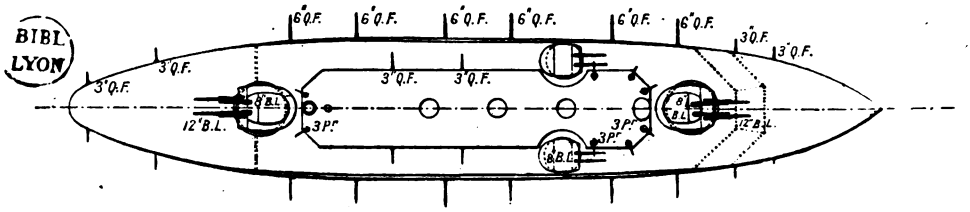
Length, 450 ft.; 16,000 tons; Speed, 18·1—18·8 knots; Completed, 1906–1908;
Armament, 4—12 in., 8—8 in., 12—7 in., 20—3 in., 30 small.

Connecticut and Louisiana have 11 in. belt instead of 9 in., and have only 2—3-in. guns at the stern. New Hampshire has two military masts in place of the towers. Minnesota has one mast and one tower.

See pages 200, 201, 203.

Georgia. Nebraska. New Jersey. Rhode Island. Virginia.





Length, 435 ft.; 14,948 tons; Speed, 19—19·4 knots; Completed, 1906–1907;
Armament, 4—12 in., 8—8 in., 12—6 in., 12—3 in., 30 small.

See pages 200–203.

PLATE 76.

BIBL. LYON

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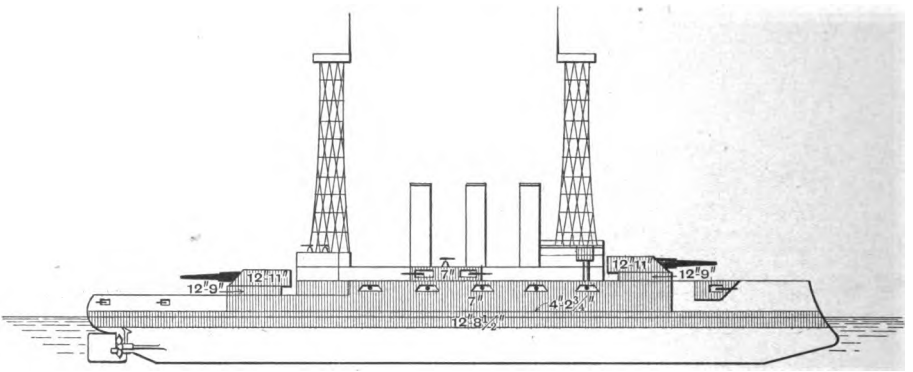
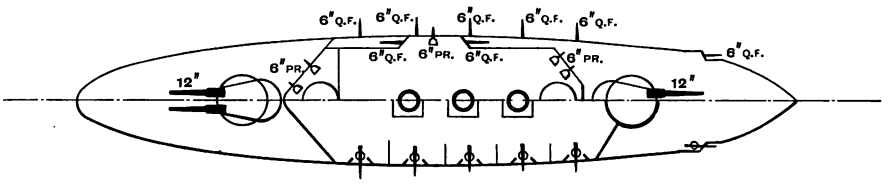
UNITED STATES.

BATTLESHIPS.

Maine. Missouri. Ohio.

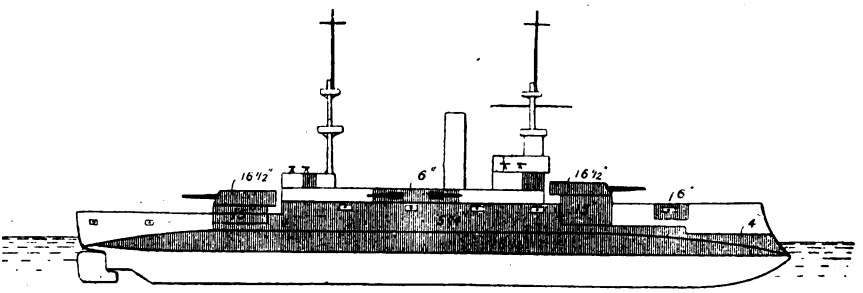


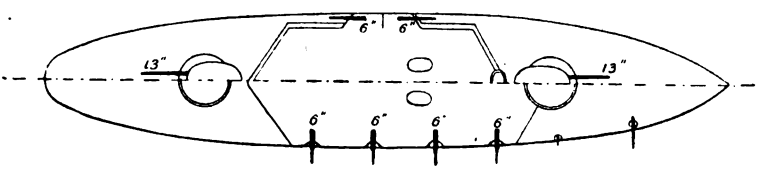


Length, 388 ft. ; 12,500 tons ; Speed, 17·8—18·1 knots ; Completed, 1902–1904 ;
Armament, 4—12 in., 16—6 in. 6—3 in., 18 small.

See pages 201, 202.

Alabama. Illinois. Wisconsin.





Length, 368 ft. ; 11,565—11,653 tons ; Speed, 17—17·45 knots ; Completed, 1900–1901 ;
Armament, 4—13 in., 14—6 in., 24 small.

See pages 200, 203.

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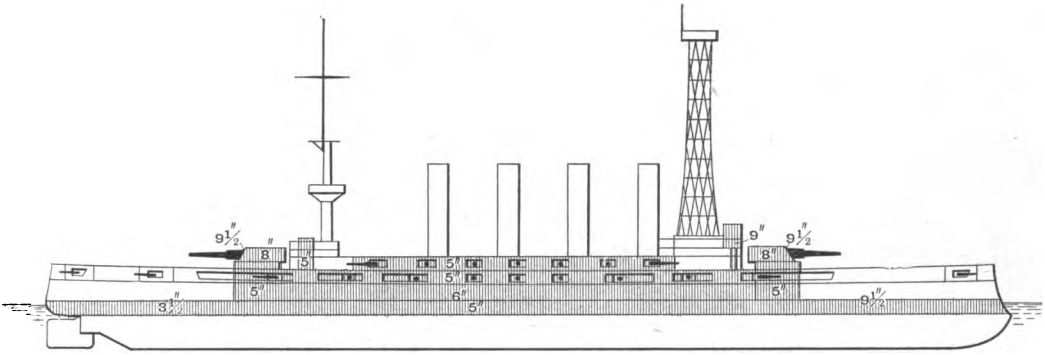
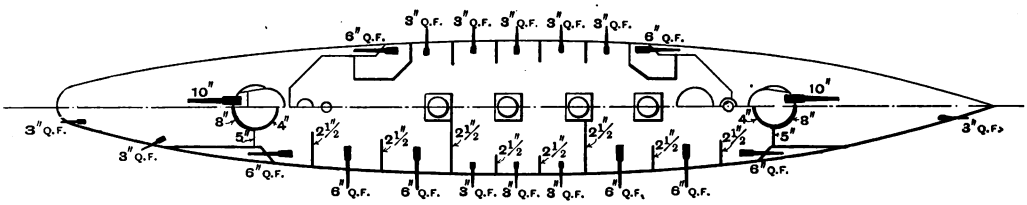
UNITED STATES.

ARMOURED CRUISERS.

Montana. North Carolina. Tennessee. Washington.

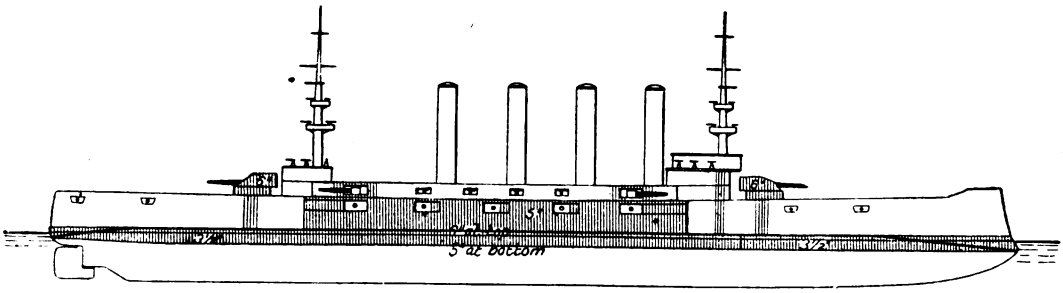


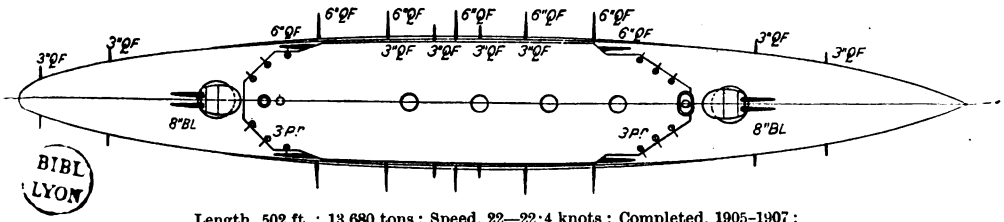


Length, 502 ft. ; 14,500 tons ; Speed, 22—22·5 knots ; Completed, 1906–1908 ;
Armament, 4—10 in., 16—6 in., 22—3 in., 22 small.

See pages 201, 202, 203.

Colorado. Maryland. Pittsburg. San Diego (*ex* California). South Dakota. West Virginia.





BIBL LYON

Length, 502 ft. ; 13,680 tons ; Speed, 22—22·4 knots ; Completed, 1905–1907 ;
Armament, 4—8 in., 14—6 in., 18—3 in., 30 small.

See pages 200–203.

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PART III.

ARMOUR AND ORDNANCE.

ENEMY AND NEUTRAL ORDNANCE TABLES.

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PART III.

NOTHING can be written here relating to the progress made in the scientific development or production of Naval Ordnance in the Allied countries. As is well known, extraordinary energy has been thrown into everything that relates to the provision of armaments, and, very great difficulties having been surmounted, the output is now enormous. A great number of factories have been brought under Government control, and in every part of this country operations are proceeding at full blast. As Sir Robert Hadfield said, speaking at Sheffield, and telling his hearers of the erection of one of the largest national factories—touching the enormous output, from which he was not at liberty to speak—"perhaps the Admiralty has a few little surprises in store for the enemy about which we do not talk."

Heavy German Naval guns on land service.

Reference was made last year to the long-range firing of the Germans at Dunkirk with a heavy naval gun, assumed possibly to be a 12-in. mounted for high-angle fire. It is now known that the gun in question was a Krupp 15-in., used with remarkably low trajectory. This gun, as will be seen in the tables which follow, is made in 40, 45 and 50 calibre lengths, the medium length, so far as is known, being that used in the naval service and mounted in the new battleships and battle-cruisers. A letter found on a captured German officer, who possessed some technical knowledge, gave certain details of the use of this gun on land, and may therefore be quoted here:—

> It is interesting that the French and English could not grasp how our artillery could bombard Dunkirk from 25 to 30 kilomètres distance. The former read in their newspapers that our men-of-war had been bombarding the coast, while the English at last found out through flying men that it was really our new artillery (38-cent.—15-in.—guns), which, in consequence of new positions, were able to do away with high-angle fire, and obtained the extraordinarily long range of 28 to 30 kilomètres with a flatter trajectory. I knew of this possibility several months ago, but I kept my mouth shut in the hope that the English armoured cruisers would so come a little nearer the coast, but now the English know it too it does not matter. With this weapon—I hope Krupp will make a few more 38-cent. guns—we shall continue to clear the country with a flatter trajectory, and soon be able to turn the present direction, Amiens, Dunkirk, towards west generally, to the mouth of the Somme, whereby Calais, Boulogne, and eventually the south will come into our possession.

The confidence of this officer is quite characteristic of the firm belief which the Germans have always held of the merits of Krupp guns. The late Admiral von Pohl, Chief of the Admiralstab in the

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Possible rearming of German battle-ships.

early days of the war, and subsequently in command of the High Sea Fleet, expressed this confidence to the present writer. He said the guns in the German battleships were of high excellence, great endurance, and remarkable accuracy. He was speaking of the 11-in. guns of the Nassau class. Nevertheless the Germans followed us with a 12-in. gun, and, hesitating when we adopted the 13·5-in., they followed our lead again when we mounted the 15-in. in the Queen Elizabeth class. The Krupp 15-in. gun appears in the German Ersatz Wörth class, and doubtless in the contemporary battle-cruisers. It has been rumoured, indeed, that 17-in. guns have been mounted in the Hindenburg, but there is no evidence for the fact, and nothing to point to its probability. There is a possibility, however, that the Germans may have substituted 15-in. guns for the 12-in. guns of the König class, of which the Kronprinz was uncompleted at the outbreak of war. Great structural changes would certainly have been required in these ships, and their displacement and trim would have had to be altered, not only owing to the added weight of guns, mountings, turrets and ammunition supply, but to the material required to be built into the ship to withstand greater stresses. The rearmament, however, would be well within the means and skill of German naval constructors.

American 14-in. and 16-in. guns.

While the Germans are thus advancing, there are evidences of further development in the United States also. At present the standard American gun for battleships is a very successful 50-calibre 14-in., but last year a proposition for equipping the battleships authorized by the Naval Appropriation Act with 16-in. 45-calibre guns was under consideration by the Navy General Board, which favours the advance. The proposed change has some enthusiastic advocates, but it has not yet been decided to adopt the bigger gun for the Dreadnoughts. The change would make necessary a complete rearrangement of the turrets in the coming battleships and some radical departures in their construction. It would be necessary to reduce the number of large guns from twelve to eight and to abandon the three-gun turret construction, which had been perfected and was thought to have many advantages over the older arrangement of guns. But the Bureau of Naval Ordnance prepared plans for a 16-in. gun, one of which was built and tested. The Bureau regarded it as the most powerful naval gun in existence, and as fulfilling the highest expectations of its design. The Naval Gun Factory was fully equipped to turn out the new type at short notice. But many ordnance authorities in the United States did not believe a change from 14- to 16-in. guns would really increase the efficiency of the battleships.

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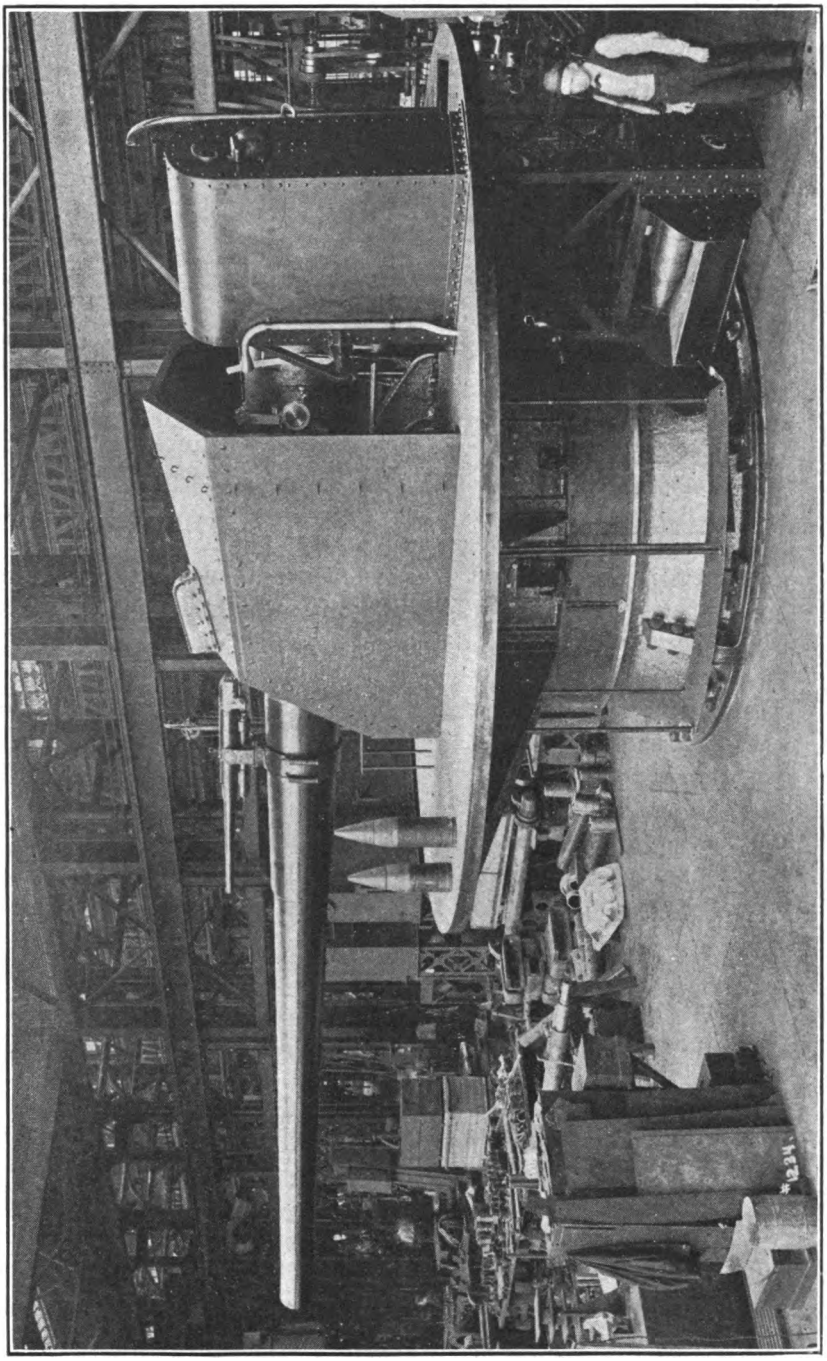

BETHLEHEM 9·2-IN. 50-CALIBRE GUN SUPPLIED TO A PRINCIPAL EUROPEAN POWER.
Showing mounting, ammunition gear, and barbette hood.

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Report on U.S. Naval Ordnance.

Rear-Admiral Strauss, Chief of the Bureau of Naval Ordnance, speaks in his annual report in the highest terms of the 14-in. gun.

With the object of keeping pace with the increased range of modern naval warfare the bureau has increased the power of the 14-in. guns for the California,* Mississippi and Idaho by increasing the length of the gun to fifty calibres and enlarging its chamber capacity. In order that these latest additions to the Navy should carry the highest type of artillery the Bureau took the bold step of ordering their guns without manufacturing a trial gun. The Bureau's confidence in its design has been fully justified. The first gun proved not only gave the designed velocity and pressure exactly, but its additional longitudinal strength, which has been provided for, has resulted in these guns having less droop than any guns of large calibre heretofore produced. As it stands these guns, although of lesser calibre and weight than the 15-in. guns now mounted abroad, are capable of penetrating the heaviest side armour at oblique impacts and at the greatest effective battle range, and give us the advantage of flatter trajectory, with greater volume of fire due to the increased number that we are permitted to mount in any ship of equal displacement.†

Admiral Strauss's report contains some interesting statements regarding special ordnance developments in the United States Navy. The preparation of anti-aircraft guns has proceeded, and the Bureau has designed and built a 4-in. 50-calibre anti-aircraft gun and mounting, which were tested and found highly satisfactory. Three-inch 50-calibre anti-aircraft guns and mounts are being manufactured for the battleships. The design of a 3-in. submarine gun and mount passed successful tests at the proving ground, and it remained only to observe its behaviour in service. In submarines after the M class this mounting will be modified to give greater elevation for use against aircraft. A 1-pdr. aircraft gun has been designed, and it was expected that the calibre would be increased as soon as the first gun and mounting had been completed.

Director installations have been made in the Michigan, Delaware, South Carolina, Utah, Florida, Arkansas, Wyoming, New York and Texas. It is proposed to fit the same installation in all other ships back to and including the New Jersey class, and in all ships building. Admiral Strauss says that as this system does not interfere in any way with the present gear, it is believed to be a valuable adjunct, because it undoubtedly provides a means of obtaining fairly accurate results in very heavy weather, or in smoke, spray, or in gases, "when the present system would be admittedly unsatisfactory."

Armament production in the States.

The war has had a very stimulating effect upon ordnance and armour production in the United States, and large supplies have been delivered to the Allied States. We illustrate a fine 50-calibre 9·2-in. gun of a type produced by the Bethlehem Steel Company, which was designed for the coast defences of a South American State,

* Since renamed New Mexico.

† Ballistic details of this new gun will be found in the Bethlehem ordnance table on a succeeding page.

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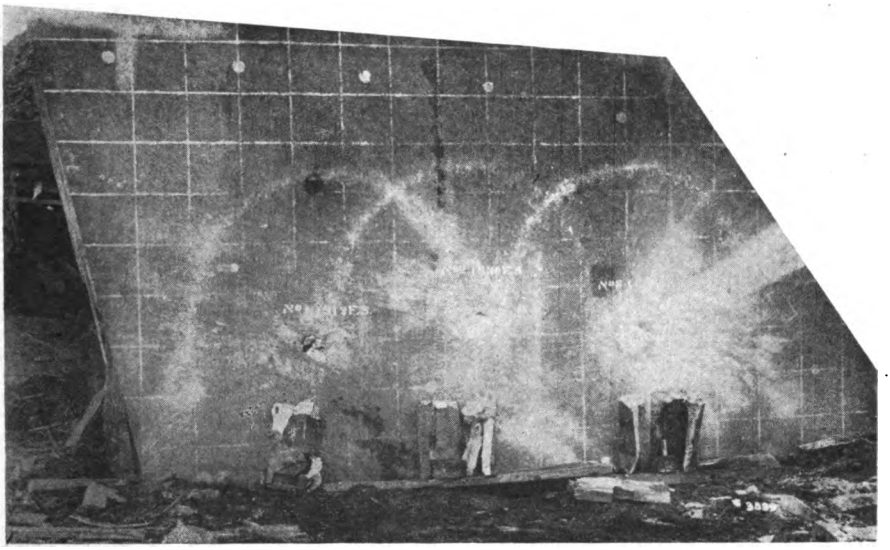
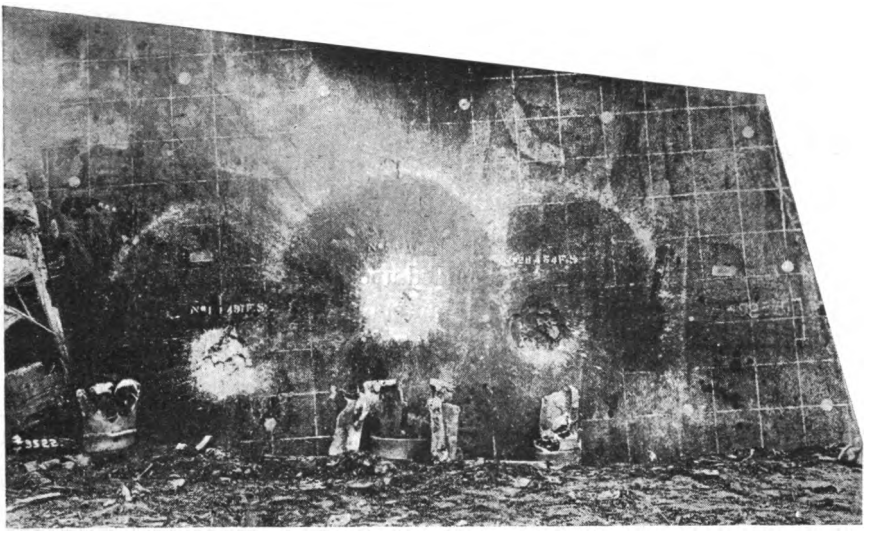


TURRET AND CONNING TOWER 10-IN. ARMOUR-PLATE, AFTER ATTACK BY 12-IN. GUN. (Bethlehem.)

but has been supplied to one of the principal Powers of Europe. This gun fires a 380 lb. projectile, with a velocity of 2900 ft. per second, and 22,200 foot-tons energy, which penetrates 14·9-in. of Krupp armour at 3000 yards and 10·8-in. at 8000 yards.

Some very remarkable 10-in., 12-in., and 13·5-in. Bethlehem trial



CARBONIZED 12-IN. ARMOUR PLATE FOR UPTAKE AND TURRET ARMOUR, AFTER ATTACK BY 12-in. (NOS. 1 AND 2) AND 14-IN. (NO. 3) GUNS.

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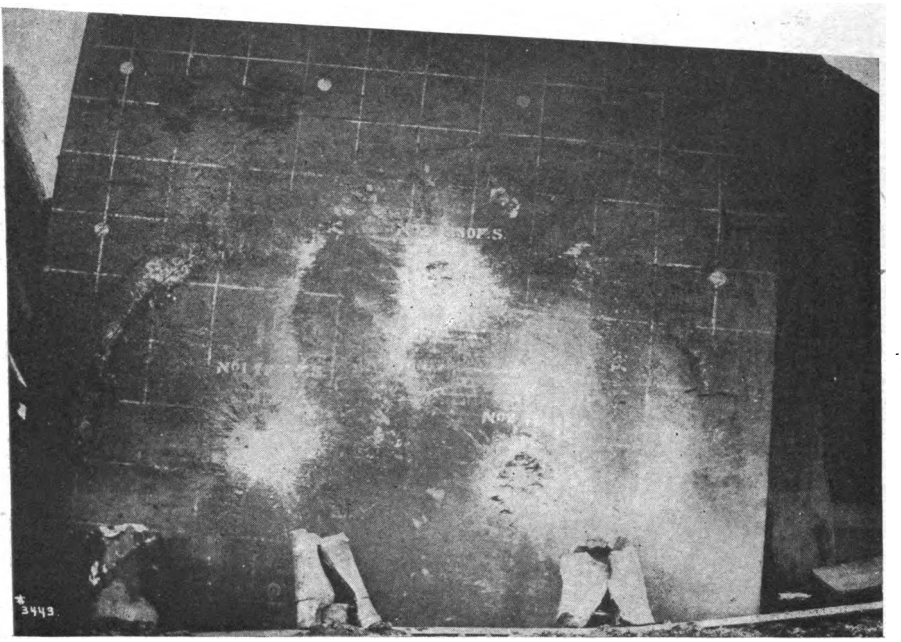
plates are illustrated attacked by 12-in. and 14-in. guns of the new classes, showing their remarkable power of resistance under the blows of A.P. shells of 870 lb. and 1400 lb. weight.

The Naval Secretary's objection to private shipbuilding and armament works.

It is very remarkable that the Secretary of the Navy, Mr. Josephus Daniels, should have entered at this time upon a campaign against the private shipbuilding yards and armour-plate works of the United States. He seems to think that ships can be built more cheaply, and ultimately supplied with armour and guns, by Government yards and works. Here he appears to be flying in the face of experience. The great advantage of Germany at the present time is



BETHLEHEM CARBONIZED 13·5-IN. STEEL PLATE FOR MAIN SIDE ARMOUR, AFTER ATTACK BY 14-IN. (NO. 1) AND 12-IN. (NOS. 2 AND 3) GUNS.

that she has fostered and depended upon the resources of the Krupps, whose works were filled with an enormous staff of trained artificers engaged in peace time upon railway and every kind of engineering construction. In this country also it has been the wise policy of the Government for many years past to favour the development of private establishments, and we are reaping enormous advantages at the present time. Mr. Daniels's policy carried to the end which appears to be his ambition would place the United States in a very difficult position in case of war.

His ideas meet with great opposition, and Brig.-Gen. Crozier,

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The U.S. Chief of Ordnance on armament production.

Chief of Ordnance, is altogether opposed to them. He says that under the stimulus of the war a number of manufacturers in the United States have established plants, or enlarged existing ones, with a capacity of turning out, in some cases, very large quantities of *matériel* of the class for which the demand is greatest in war. His department has undertaken to inform itself in some degree as to the location and capacity of these plants, and has received gratifying statements as to the extent of the output which might be expected and the willingness of the proprietors to operate their plants in the service of the Government. Instead of spending the half a billion dollars which would be required, according to his estimate, for the erection of Government munition plants, a plan is afoot to enable the Government to assist in developing private manufactories. This, General Crozier declares, can be done at an expenditure of about £75,000. One important feature of this scheme would be the manufacture by the Government of sets of jiggers, gauges, and patterns. Whenever the Ordnance Department adopts any new type of ordnance, if this plan is adopted, it would make several thousand extra patterns and keep them in storage. In the event of war the Government would send to the private factories this necessary material by which automobile factories, bicycle factories, typewriter factories, and, in fact, almost any metal manufacturing concern, could be transformed into munition factories.

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N.B.—The guns marked with an asterisk, as well as some shorter and smaller guns, are included in the German official table of ship guns.]

GERMAN SHIP AND COAST GUNS (KRUPP).

Calibre . . . . cm.	7·5 = 2·9 in.			8·8 = 3·4 in.			10·5 = 4·1 in.			12 = 4·7 in.			15 = 5·9 in.			17 = 6·7 in.			19 = 7·4 in.		
Length of Bore . . cals.	40	45	50	40*	45	50	40*	45	50	40	45	50	40*	45*	50	40*	45	50	40	45	50
Length of Bore . . mm.	3000	3375	3750	3520	3960	4400	4200	4725	5250	4800	5400	6000	5965	6710	7455	6905	7765	8630	7600	8550	9500
Total Length . . ,,	3195	3570	3945	3750	4190	4630	4475	5000	5525	5110	5710	6310	6355	7100	7845	7355	8215	9080	8095	9045	9995
Weight of Gun . . kg.	677	764	850	1094	1234	1373	1555	1755	1950	2325	2620	2910	4460	5020	5590	6930	7800	8680	9230	10400	11550
Weight of Projectile ,,	5·8	5·8	5·8	9·5	9·5	9·5	16	16	16	24	24	24	46	46	46	70	70	70	95	95	95
Weight of Charge . ,,	1·65	1·86	2·09	2·66	3·0	3·37	5·05	5·80	6·60	7·5	8·65	9·85	14·4	16·6	18·9	22·4	25·7	29·3	29·8	34·3	39·1
Muzzle Velocity . m.	840	890	940	840	890	940	840	890	940	840	890	940	840	890	940	840	890	940	840	890	940
Muzzle Energy mètre-tons	208·6	234·2	261·2	341·7	383·5	427·8	575	646	721	863	969	1081	1654	1857	2072	2517	2826	3152	3417	3835	4278
Muzzle Penetration (Steel) mm.	203	220	238	243	264	285	292	317	344	338	367	397	426	463	500	492	535	578	553	600	649

Calibre . . . . . cm.	21 = 8·2 in.			24 = 9·4 in.						28 = 11 in.						30·5 = 12 in.					
Length of Bore . . cals.	40*	45*	50*	40*		45		50		40*		45*		50*		40		45*		50*	
Length of Bore . . mm.	8370	9420	10465	9600		10800		12000		11200		12600		14000		12200		13725		15250	
Total Length . . ,,	8915	9965	11010	10225		11425		12625		11930		13330		14730		12995		14520		16045	
Weight of Gun . . kg.	12330	13900	15450	18600	16750	21000	19000	23300	21450	29550	26600	33300	30200	37000	34050	38200	34400	43000	39000	47800	44000
Weight of Projectile . ,,	125	125	125	190	190	190	190	190	190	300	300	300	300	300	300	390	390	390	390	390	390
Weight of Charge . ,,	39·9	45·8	52·3	60·1	51·8	69·1	60·1	78·8	69·8	95	82	110	95	125	111	123	106	142	123	162	143
Muzzle Velocity . m.	840	890	940	840	800	890	850	940	900	840	800	890	850	940	900	840	800	890	850	940	900
Muzzle Energy mètre-tons	4495	5047	5629	6833	6198	7671	6997	8557	7844	10790	9790	12110	11050	13510	12390	14030	12720	15750	14360	17560	16100
Muzzle Penetration (Steel) mm.	606	658	711	703	658	766	717	828	778	828	772	900	842	973	914	912	850	990	927	1071	1006

Calibre	35·56 = 14 in.						38·1 = 15 in.						40·64 = 16 in.					
Length of Bore	40		45		50		40		45*		50		40		45		50	
Length of Bore . . mm.	14225		16000		17780		15240		17145		19050		16255		18290		20320	
Total Length . . ,,	15150		16925		18705		16230		18135		20040		17315		19345		21375	
Weight of Gun . . kg.	60500	54500	68100	61900	75800	69700	74400	67000	83800	76100	93200	85800	90300	81400	101700	92400	113100	104100
Weight of Projectile ,,	620	620	620	620	620	620	760	760	760	760	760	760	920	920	920	920	920	920
Weight of Charge . ,,	196	169	225	196	256	227	241	207	277	241	315	279	292	252	336	292	383	339
Muzzle Velocity . m.	840	800	890	850	940	900	840	800	890	850	940	900	840	800	890	850	940	900
Muzzle Energy mètre-tons	22300	20220	25030	22830	27920	25600	27330	24790	30680	27990	34230	31380	33090	30010	37140	33880	41430	37980
Muzzle Penetration (Steel) mm.	1077	1005	1170	1095	1265	1189	1157	1079	1257	1177	1359	1277	1238	1154	1344	1252	1453	1366

The Salamis, taken over from the Greeks for the German Navy, was to have Bethlehem 14-in. guns. These were not delivered, and possibly the Krupp 14-in. guns here shown have been substituted.

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KRUPP GUNS FOR USE AGAINST AIRCRAFT.

		2·9-in. Field Gun with Pivot-Traversing Wheels.	2·8-in. Gun on Motor Carriage.	2·9-in. (12-pr.) Ship Gun with Shield.	3·4-in. Ship Gun without Shield.	3·4-in. Ship Gun with Shield.	4·1-in. Coast Gun with Shield.	4·7-in. Coast Gun with Shield.
				Shield mounting at centre of gravity of the gun and cradle.			Shield mounting at the rear.	
Calibre	cm.	7·5	7·1	7·5	8·8	8·8	10·4	12
Length of Bore	cals.	30	30	45	35	45	45	45
Weight of Guns—Firing Position	kg.	1030	1230	4360	3469	5840	5480	8530
Weight of the Gun-Carriage	kg.	1700	—	—	—	—	—	—
Weight of the Shield	kg.	—	—	940	—	2400	780	1080
Thickness of Shield	mm.	—	—	12	—	50/12	12	12
Elevation and Depression	deg.	+65 −5	+75 ±0	+70 −10	+80 −10	+60 −10	+60 −10	+60 −10
Rounds per Minute		—	—	25–30	20–25	20–25	15	10
Weight of Projectile	kg.	6·5	5	5·8	9·5	9·5	15·5	24
Initial Velocity	m.s.	510	650	800	630	800	800	800

These Guns can be trained round the whole circle. Details of the Motor Carriage for the 2·8 in. gun:—

Weight of the Carriage without gun	4620 kg.
,, ,, with gun, but without ammunition	5850 kg.
,, ,, on the road with six men	7100 kg.
Mean Speed on the road	45 km.
Highest Speed	60 km.

RHEINISCHE METALLWAAREN- UND MASCHINENFABRIK, DÜSSELDORF.

NAVAL GUNS.

EHRHARDT SYSTEM.

From tables supplied by the Company, May, 1914.

Calibre cm.	5·7 = 2·244 in.			6·5 = 2·56 in.			7·5 = 2·95 in.			8·8 = 3·46 in.			10·5 = 4·14 in.			12 = 4·7 in.			15 = 5·92 in.		
Length of Bore cals.	40	45	50	40	45	50	40	45	50	40	45	50	40	45	50	40	45	50	40	45	50
Length of Bore mm.	2280	2565	2850	2600	2925	3250	3000	3375	3750	3520	3960	4400	4200	4725	5250	4800	5400	6000	6000	6750	7500
Total Length ,,	2450	2735	3020	2780	3105	3430	3195	3570	3945	3750	4190	4630	4475	5000	5525	5110	5715	6310	6380	7130	7880
Weight of Gun kg.	300	350	375	460	515	570	610	690	775	980	1085	1220	1680	1900	2100	2530	2850	3150	4800	5400	5920
Weight of Projectile ,,	2·85	2·85	2·85	4·3	4·3	4·3	6·5	6·5	6·5	10·5	10·5	10·5	18	18	18	27	27	27	51	51	51
Weight of Charge ,,	0·715	0·83	0·91	1·08	1·22	1·37	1·63	1·85	2·12	2·64	2·91	3·34	5	5·8	6·6	7·6	8·75	9·7	14·4	16·5	18·6
Muzzle Velocity m. sec.	790	840	880	790	840	880	790	840	880	790	840	880	790	840	880	790	840	880	790	840	880
Muzzle Energy mètre-tons	90·7	104·5	112·4	137	154·4	169·6	207	233·5	263	334	368·4	414	572	647	711	858	971	1064	1623	1832	2010

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AUSTRIAN NAVAL ORDNANCE.

Designation by Calibre, in centimètres, length in calibres, and type of gun	38 L. 45 Skoda.	35·5[1] L. 45 Skoda.	30·5[2] L. 45 Skoda.	24[3] L. 45 Skoda.	24[4] L. 40 Skoda.	24 L. 40 K. 97	24 L. 40 K. 94	15 L. 40 Skoda.	15 L. 40 Krupp	15 L. 35	12 L. 40 Skoda.
Calibre, in inches	14·96	14	12·01	9·45	9·45	9·45	9·45	5·91	5·9	5·87	4·72
Length: Total, in feet	59	52	45·0	35·5	31·5	31·5	31·5	19·5	19·5	17·13	15·74
Length: Rifled Portion, in ins.	..	..	417·9	325·8	290·3	290·3	286·2	182·6	182·5	153·6	147·6
Length: Powder Chamber in ins.	..	..	78·3	65·2	55·5	55·5	63·7	35·4	35·4	35·4	28·6
Length: Of bore in calibres	..	..	45	45	40	40	40	40	40	35	40
No. of Grooves	..	..	92	72	72	72	72	44	44	44	36
Twist in calibres	..	..	40–25	40–25	45–25	45–25	∞–25	∞–25	∞–25	45–25	45–25
Weight: Gun, tons	79·3	69	51–9	26·23	27·30	29·8	27·5	4·22	4·36	3·68	2·04
Weight: Breech Block, in lb.			3450·2	1873·9	1336·0	..	1450	330	339·5	346	172
Weight: Steel Shell ,,	1907	1565·3	992	473·0	504·8	473	473	102·1	102·1	102·1	52·4
Weight: Common Shell ,,	1477	1212·5	992	473·0	504·8	473	473	112·5	..	102·1	52·4
Weight: Shrapnel Shell ,,	..	..	..	..	..	..	..	..	..	102·1	52·4
Weight of Bursting Charge: Steel Shell ,,	..	..	7·3	2·03	8·3	8·3	8·3	3·31	3·31	1·98	1·1
Weight of Bursting Charge: Common Shell ,,	..	..	53·6	23·4	29·5	29·5	47·3	4·84	4·84	5·73	2·86
Weight of Bursting Charge: Shrapnel Shell ,,	..	..	..	..	..	..	..	1·00	1·00	1·00	0·53
Weight of Firing Charge: Steel Projectile, in lb.	586	474	304	156·2	99·2	99·1	91·5	18·29	18·29	17·82	9·7
Weight of Firing Charge: Common Shell, in lb.	586	474	304	..	99·2		91·5		18·29	17·82	9·7
Weight of Firing Charge: Shrapnel, in lb.	..	..	..	..	..	..	..	11·85	11·85	11·85	4·41
Muzzle Velocity, in feet	2979	2979	2625	2625	2313	2313	2264	2264	2264	2133	2264
Muzzle Energy: Total, foot-tons	91103	69976	..	..	..	..	..	..	..	..	..
Muzzle Energy: Per inch circumference, foot-tons	..	..	..	..	..	..	..	..	..	..	..
Thickness of Iron, perforated inches at Muzzle, by Tresidder's formula	46·2	43·7	..	..	..	..	..	..	..	..	..
Perforation of Krupp Steel, 3000 yds., inches	..	..	..	..	..	..	..	..	..	..	..

[1] Intended to be mounted in the new battleships. [2] Mounted in the Viribus Unitis class. [3] Franz Ferdinand class. [4] Habsburg and Erz. Karl classes.

There are also Skoda 9·3-in. and 2·75-in. and Skoda and Hotchkiss 3-pdrs.

Corrected to July, 1914.

The 16·5-in. howitzers, which were employed in Belgium and elsewhere, were army guns and do not appear in the Skoda tables.

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DANISH NAVAL ORDNANCE.

Designation by Calibre, in centimètres, length in calibres, and type of gun	26[1] L. 35 Krupp	24 L. 40 1893 Krupp.	24 L. 40 1896 Canet.	24[2] L. 43 1901 Bofors.	24[3] L. 43 1906 Bofors.	21 L. 35 Krupp.	15 L. 35 1888 Krupp.	15 L. 43 1896 Bofors.	15 L. 43 1901 Bofors.	15 L. 50 Bofors.	12 L. 40 Krupp.	8·7 L. 40 Krupp.	7·5 L. 55 Danish semi-aut.	5·7 L. 44 Hotch-kiss.	4·7 L. 44. Hotch-kiss.	4·7 L. 50 Danish semi-aut.
Calibre, in inches	10·24	9·45	9·45	9·45	9·45	8·24	5·87	5·87	5·87	5·87	4·72	3·43	2·95	2·24	1·85	1·85
Total length, in feet	29·86	31·50	31·50	33·86	33·86	24·05	17·12	21·17	21·17	24·46	15·75	11·41	13·53	8·13	6·72	7·71
Length of Bore, including Powder Chamber — in inches	327·6	349·7	358·5	397·0	397·0	264·5	189·0	244·0	247·4	286·4	176·4	126·8	152·6	89·8	74·1	87·6
Length of Bore, including Powder Chamber — in calibres	32·0	37·0	37·9	42·0	42·0	32·1	32·2	41·6	42·1	48·8	37·3	37·0	51·7	40·0	40·0	47·3
Number of Grooves	60	72	60	60	60	48	36	44	44	44	36	32	28	24	20	20
Twist of Rifling, in calibres	70–25	00–25	72–33	72–33	33	50 25	70–25	70–30	70–30	30	42–25	45–20	30	180–30	25	40–25
Total weight, including Breech-gear, tons	27·3	25·4	22·9	24·3	24·5	13·3	4·7	5·5	5·5	7·5	2·26	1·13	0·87	0·36	0·23	0·32
Weight of — Breech Block, lb.	2006	1691	871	851	802	904	390	295	252	313	205	136	83	60	40	40
Weight of — Armour-piercing Projectile, lb.	452	353	353	353	353	238	112	112	112	112	..	..	..	..	..	..
Weight of — " Shell "	..	353	353	353	353	..	..	112	112	112	44	20	15	6	3·3	3·3
Weight of — Common Shell, lb.	452	353	353	353	353	238	112	112	112	112	44	20	15	6	3·3	3·3
Weight of Bursting Charge — Armour-piercing Shell, lb.	..	5·3	5·3	5·3	5·3	..	..	1·7	1·7	1·7	1·7	0·7	0·7	0·25	0·11	0·11
Weight of Bursting Charge — Common Shell, lb.	29·8	24·9	24·9	21·4	21·4	16·5	7·2	7·2	7·2	7·2	2·8	1·3	0·7	0·19	0·14	0·14
Weight of Firing Charge, lb.	191·8	91·5	77·2	83·8	97·0	105·8	41·9	22·0	22·5	34·2	11·3	4·7	4·0	1·3	1·1	1·4
Muzzle Velocity, feet	2018	2362	2362	2477	2641	2018	1854	2297	2297	2690	2362	2362	2625	2297	2346	2723
Muzzle Energy — Total foot-tons	12750	13640	13640	15000	17060	6712	2678	4100	4100	5642	1702	767	737	218	126	170
Muzzle Energy — Per inch circumference, foot-tons	396·4	459·5	459·5	505·4	574·7	259·3	145·2	222·4	222·4	306 1	114·8	71·2	79·5	31·0	21·7	29·3
Perforation at Muzzle, wrought iron, Tresidder's formula, inches	22·8	26·6	26·6	28·6	31·5	18·5	13·2	18·3	18·3	23·2	13 3	10·5	11·7	6·8	5·8	7·2
Perforation Krupp Steel, 3000 yards, inches	6·2	9·1	9·1	9·8	10·7	4·2	3·3	6·2	6·2	7·9	..	..	..	..	..	..

[1] Iver Hvitfeldt. [2] Olfert Fischer. [3] Peder Skram. There are also some older 1·46-in. 1-pdr. Hotchkiss guns. Corrected to April, 1916. *See* also Bofors Tables.

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DUTCH NAVAL ORDNANCE.

	Krupp Q.F.								
Designation by Calibre, in centimètres	28[1] Q.F.	24[2] Q.F.	24[3] Q.F.	15 Q.F.	15 Q.F.	15 Q.F.	12 Q.F.	10·5 Q.F.	7·5 Q.F.
Calibre, in inches	11·0	9·4	9·4	5·9	5·9	5·9	4·72	4·1	3·0
Total Length, in feet	40·0	31·5	31·5	19·55	19·55	19·55	15·75	18·5	13·5
Length of Rifled Portion of Bore, in inches	..	..	..	..	..	..	..	..	..
Length of Powder Chamber "	..	..	..	..	..	..	..	..	..
Length of Bore, in Calibres	40	37	37	37	37	37	37	50	55
Number of Grooves	..	..	..	..	..	..	..	..	..
Depth of Grooves, inches	..	..	.	..	..	..	..	..	..
Twist of Rifling, in Calibres	..	..	..	..	..	..	..	..	..
Total Weight, in tons	31·0	24·5	24·5	4·83	4·88	5·11	2·40	1·24	1·00
Firing Charge: Armour-piercing Projectile, in lb. / Common Shell "	..	..	..	..	..	..	..	..	..
Weight: Armour-piercing Projectile " / Common Shell " / Case Shot "	595·24	374·80	374·80	100	90·38	90·38	52·35	39·68	12·90
Bursting Charge: Armour-piercing Projectile " / Common Shell "	..	..	..	..	..	..	..	..	..
Muzzle Velocity, feet	2920	2690·5	2789	2221	2444	2789	2221	2900	2945
Muzzle Energy: Total, in foot-tons	15,191	18,809	20,210	3469	3744	4874	1807	..	..
Muzzle Energy: Per inch Circumference, foot-tons	..	..	..	..	.	..	..	..	..
Perforation at Muzzle, in inches (Krupp Steel)	24·25	18·1	19·1	6·5	9·8	11·5	4·7	..	..
Perforation Krupp Steel, 3000 yards	18·50	14	14·2	3·9	5·7	7·1	..	..	..
Model	1909	1900	1905	1899	1900	1905	1899	1912	1910

[1] De Zeven Provincien. [2] Koningin Regentes. [3] Heemskerck, Tromp.
Corrected to April, 1916. There is a new model of the 28 cm. with muzzle energy of 35,000 ft. tons.

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NAVAL ORDNANCE OF NORWAY.

	Modern Guns.							
Designation by Calibre, in cms.	21	21[1] Q.F.	15	15 Q.F.	12 Q.F.	76 mm.	76 mm.	7 cm.
Calibre, inches	8·24	8·24	5·87	5·87	4·7	3·0	3·0	2·8
Total Length, feet	24·0	31·2	19·6	23·3	17·7	10·3	13·3	9·2
Length: Rifled Portion of Bore, inches	212·3	309·7	178·0	234·1	179·2	102·4	127·7	81·8
Length: Chamber, inches	49·0	48·6	39·0	32·9	26·0	15·4	20·4	19·1
Length: Bore in calibres	35·0	43·8	37·2	45·8	44·0	40	50	36·6
Number of Grooves	64	32	44	28	26	16	28	28
Twist of Rifling	46–23	∝–30	45–25	∝–30	∝–30	∝–30	30	20
Total Weight, tons	14·2	18·9	5·6	7·1	2·7	0·6	1·0	0·63
Weight of: Armour-piercing Shell, in lb.	309	309	112·4	99·3	45	12·5	12·5	10·5
Weight of: Common Shell, in lb.	..	..	..	..	..	..	..	..
Weight of * Firing Charge: Armour-piercing Shell, in lb.	45·6	54	20·4	20·9	9·4	2·2	3·75	2·2
Weight of * Firing Charge: Common Shell, in lb.	..	..	..	..	..	..	.	..
Muzzle Velocity, feet	1903	2300	2050	2625	2570	2200	2840	2230
Muzzle Energy, Total foot-tons	7760	11450	3328	4870	2060	430	695	367
Perforation through Iron by Tresidder's formula	19·3	25·6	15·4	21	15·3	8·0	11·6	7·8
Perforation, Krupp Steel, 3000 yards	4¾	6½	3¼	4	..	..	..	..

* Smokeless powder. Corrected to April, 1916. [1] Norge and Tordenskjöld classes.

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SPANISH NAVAL ORDNANCE.

—	Hontoria.—Pattern 83.—Breech Loading.						Canet.		Skoda.			Krupp	Vickers.		Maxim Nordenfelt.	Nordenfelt.		Hotchkiss.			Maxim Nordenfelt.
Designation by Calibre, in m/m	320	280	240	200	140	120	150	140	150	70	47	105	101·6	75	75	57	42	57	37	37	37
Length: Total length, in m/m	11780	10310	10200	7360	5303	4420	7500	6300	5960	2743	2048	3680	5240	1222·9	3500	2651	1935	2480	842	1134	1105
Length: Powder Chamber, in m/m	2113·5	1845	1698·3	1695	1030	886	1124	1078·5	915	..	397·05	750	635·23	111	632·20	345·78	353	256	129	627	394·6
Length: Bore, in m/m	11180	9787	8387	7095	4879	4173	7250	4893·2	5540	2550	1881	3375	5100	934·74	3200	2413	1750	2280	713	740	980·9
No. of Grooves	80	70	60	50	34	30	48	36	44	24	20	32	32	32	30	24	18	24	12	12	12
Depth of Grooves, in m/m	1·5	1·5	1·25	1·25	1·00	1·00	1·00	1·00	1·5	0·75	1·20	1·25	1·00	0·75	0·58	0·305	0·305	0·3	0·37	0·4	0·4
Twist of Rifling, in m/m and degrees	9600	8400	7200	6000	4200	3600	6°	4902·5	..	..	..	..	3048	1919·02	2250	1710	6°	6°	1·107	1·131	1·110
Weight of the empty projectile: Armour-piercing proj., in kgs.	472·20	315·0	198·0	114·6	39190	24100	39500	39190	44350	3878	1440	..	13920	5670	6410	2605	1093	2546	0·488	0·488	0·409
Weight of the empty projectile: Common Shell, in kgs.	398·60	265·60	167 00	98·00	34946	21400	38·00	34946	40445	3770	1440	17400	12620	5600	6390	2633	1108	2574	0·407	0·407	0·409
Weight of the empty projectile: Ring Segment, in kgs.	402·30	268 00	168·50	99·00	33835	21600	..	33835	44990	3760	..	..	..	..	..	..	..	..	..	..	..
Weight of the empty projectile: Semi-piercing, in kgs.	399·86	363·109	167·00	98207	34260	20043	..	34260	..	..	..	..	12920	..	..	..	..	..	..	..	..
Weight of the empty projectile: Case Shot, in kgs.	..	.	..	..	..	..	..	..	..	..	..	..	..	6000	..	2224	1264	2240	0·616	0·616	..
Weight of the explosive charge: For the Armour-piercing, in kgs.	7500	5000	3000	1900	0·512	0·340	0·500	0·512	0·860	0·122	0·060	..	0·500	0·230	0·227	0·078	0·038	0·115	0·015	0·015	0·013
Weight of the explosive charge: „ Common Shell, in kgs.	21000	14000	9000	5000	1695	0·950	1430	1695	4225	0·230	0·060	0·350	1350	0·260	0·250	0·065	0·038	0·085	0·022	0·022	0·013
Weight of the explosive charge: „ Ring Segment, in kgs.	17500	12000	7500	4000	1216	0·800	..	1216	0·445	0·240	..	..	..	..	..	..		..	..	..	..
Weight of the explosive charge: „ Semi-piercing, in kgs.	..	..	..	..	..	..	..	..	..	..	..	..	1061	..	..	..	..	..	..	..	..
Muzzle Velocity, in metres	620	620	647 1	620	580	612	800	736	690	710	710	600	884	300	641	570	603	670	404	404	549
Muzzle Energy, in metre-tons	9408	6275·9	4400	2290	679·8	469	1309	1094·7	1098	102·9	38·5	326	574·9	27	139·1	45	21·6	42·5	4	4	6·4

Corrected to April, 1916.

The 12-in. 50-calibre Vickers gun in the España class fires a projectile of 850 lb., with muzzle velocity of 3010 ft. secs., and muzzle energy of 53,400 foot-tons.

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NAVAL ORDNANCE OF SWEDEN.

—	Bofors.	Armstrong.		Canet and Bofors.	Arm-strong.	Whit-worth.	Bofors.		Bofors.			Bofors.	Bofors.	Stockholms Vapenfabrik and Finspong.		Bofors.	Fin-spong.	Stockholms Vapenfabrik.		Fin-spong.	Stockholms Vapenfabrik.	
N. = belongs to the Navy. C.A. = belongs to the Coast Artillery.	28 cm.k. m/12	25 cm.k. m/85	25 cm.k. m/89	25 cm.k. m/94	24 cm.k. m/90	24 cm.k. m/92	24 cm.k. m/96	24 cm.k. m/04	21 cm.k. m/98	15 cm.k. m/98	15 cm.k. m/03 and m/12	12 cm.k. m/94 and m/97	12 cm.k. m/03 and m/11	7·5 cm.k. m/05 and m/12	5·7 cm.k. m/89 B and m/99	5·7 cm.k. m/92	5·7 cm.k. m/95 ⊙ B1/95B	5·7 cm.k. m/95 C.	5·7 cm.k. m/95 D.	4·7 cm.k. m/92	4·7 cm.k. m/95	3·7 cm.k. m/98 B
	N.	C.A.	C.A.	N.	C.A.	C.A.	C.A.	C.A.	N.	N.C.A.	N.C.A.	N.C.A.	C.A.	N.	N.C.A.	N.C.A.	C.A.	C.A.	N.	C.A.	N.	N.C.A.
Designation by Calibre, in cms.	28·3	25·4	25·4	25·4	24	24	24	24	21	15·24	15·24	12	12	7·5	5·7	5·7	5·7	5 7	5·7	4·7	4·7	3·7
Total Length . . . . . mm.	12735	8636	8636	10670	8237	8544	10320	12000	9335	6768	7620	5400	6000	3970	3108	2760	1478	1504	1900	1200	2572	1450
Length . Rifled Portion of Bore . mm.	10515	6637	6550	8498	6353	6618	8541	10009·3	7801·1	5693	6265·9	4665	5013	3129	2517·5	2328	1049·5	1049·5	1447·5	817·3	2034·5	1126
Length . Chamber	1660	1397	1397	1609	1209	1373·1	1299·6	1508·4	1123	787·7	1049·9	474	742	560·5	265	229	205	205	200	175	2572	133·4
Length . Bore, in calibres . . .	44	32	32	40·5	32·4	33·5	41	48	42·5	42·5	48	43	48	49	49	41·5	22	23	30	22	49	34
Number of Grooves	80	42	42	44	42	40	40	40	60	44	44	36	36	28	24	24	24	24	24	24	20	16
Twist of Rifling	28	40	40	30	30	30	30	30	30	30	30	30	30	30	30	30	25	25	27	25	30	30
Total Weight . . . . . tons	34·4	30·25	31·03	29·2	23·84	28·1	25	30·44	17·00	5·98	7·75	2·8	3·7	0·950	0·380	0·334	{0·216 / 0·206}	0·212	0·189	0·116	0·243	0·0773
Weight . Armour-piercing Shell, in kg.	305	204	204	204	181	215	215	215	125	45·4	45·4	21	21	—	—	—	—	—	—	—	—	—
Weight . Common Shell . . kg.	—	182	182	182	181	215	215	—	—	—	—	21	21	6·5	2·722	2·722	2·722	2·722	2·722	1·5	1·5	0·8
Weight of Firing Charge . Armour-piercing Shell, in kg.	100	41	41	45·2	34	45·5	43	53	30	10·3	15	4·3	7·0	—	—	—	—	—	—	—	—	—
Weight of Firing Charge . Common Shell . . kg.	—	31·5	31·5	—	—	—	—	—	—	—	—	4·3	7·0	1·3	0·435	0·34	0·24	0·24	0·365	0·143	0·3	0·08
Muzzle Velocity . . . . . m.	870	640	640	720	625	640	685	785	750	750	850	740	860	780	704	640	485	485	600	468	740	550
Muzzle Energy, total m. ton. . . .	11288	4258	4258	5386	3609	4209	5138	6575	3581	1301	1671	586	791	201	68·7	56·8	32·64	32·64	49·9	16·73	41·80	12·3
Perforation (K.C. armour, 3000 m.), in cms.	—	14·6	14·6	20·6	13·4	19·0	21·8	35·9	22·9	10·4	15·7	—	10·5	—	—	—	—	—	—	—	—	—

Corrected to April, 1916. For the 11-in. and 12-in. guns, and details of some of the others, *see* the Bofors Company's table, *post*.

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UNITED STATES NAVAL ORDNANCE.

GUN.	MARK.	Length in Calibres.	Total Length	Capacity of Chamber in Cubic Inches.	Travel of Projectile in Inches.	Weight of Gun.	Weight of Projectile	Weight of Charge.	Muzzle Velocity.	Muzzle Energy.	Penetration at Muzzle, Krupp Armour, using Capped Projectile.	At 3000 Yards.		At 6000 Yards.		At 9000 Yards.	
												Remaining Velocity.	Penetration.	Remaining Velocity.	Penetration.	Remaining Velocity.	Penetration.
			inch.			tons.	lb.	lb.	ft.-seconds.	ft.-tons.	inch.	ft.-seconds.	inch.	ft.-seconds.	inch.	ft.-seconds.	inch.
3-in. R.F.G.	II., III.	50	154	219	128·3	0·9	13	3·85	2700	658	3·3	1230	1·2	848	0·8	..	..
3-in. S.A.	V., VI.†	50	159	219	128·3	1·0	13	3·85	2700	658	3·3	1230	1·2	848	0·8	..	..
4-in. R.F.G.	III., IV., V., VI.	40	164	331	134·5	1·5	33	4·85	2000	915	3·4	1156	1·7	897	1·2	..	..
4-in. R.F.G.	VII.	50	205	652	168·3	2·6	33	5·0	2500	1,430	4·6	1432	2·2	979	1·4	853	1·2
4-in. R.F.G.	VIII.‡	50	205	652	168·3	2·9	33	12·3	2800	1,794	5·3	1627	2·6	1033	1·5	878	1·2
5-in. R.F.G.	II., III., IV.	40	206	656	165·8	3·1	50	10·0	2300	1,852	5·3	1286	2·6	934	1·7	829	1·4
5-in. B.L.R.	V., VI.	50	256	1,200	215·6	4·6	60	19·2	2700	3,032	6·2	1692	3·5	1102	2·0	928	1·6
5-in. B.L.R.	VI.	50	256	1,200	215·6	4·6	50[1]	20·5	3000	3,122	6·4	1732	3·2	1057	1·7	877	1·4
5-in. R.F.G.	VII.§	51	261	1,135	215·6	5·0	50	23·8	3150	3,439	6·8	1835	3·4	1091	1·8	895	1·4
6-in. R.F.G.	II., III.	30	196	1,287	150·0	4·8	105	18·8	1950	2,768	5·3	1305	3·2	1009	2·3	909	2·0
6-in. R.F.G.	IV., VII.	40	256	1,320	205·8	6·0	105	18·8	2150	3,365	6·0	1440	3·6	1058	2·4	934	2·1
6-in. R.F.G.	IX.	45	270	1,320	221·7	7·0	105	18·8	2250	3,685	6·3	1511	3·8	1086	2·5	948	2·1
6-in. B.L.R.	VI	50	300	2,101	247·5	8·3	105	30·0	2600	4,920	8·6	1770	4·7	1207	2·9	996	2·2
6-in. B.L.R.	VIII.	50	300	2,101	247·5	8·6	105	37·0	2800	5,707	11·3	1923	5·2	1297	3·2	1026	2·3
7-in. B.L.R.	II.	45	323	3,643	259·8	12·7	165	58·0	2700	8,338	9·6	1948	6·4	1382	4·2	1083	3·0
8-in. B.L.R.	III., IV.	35	305	3,170	245·8	13·1	260	43·8	2100	7,948	8·6	1576	6·0	1206	4·2	1040	3·6
8-in. B.L.R.	V. and VI.	45	369	5,243	299·1	18·7	260	98·5	2750	13,360	12·0	2106	8·6	1589	6·1	1227	4·4
10-in. B.L.R.	I., II.	30	329	6,779	251·1	25·1	510	90·0	2000	14,141	10·7	1590	8·0	1274	6·1	1103	5·0
10-in. B.L.R.	III.	40	413	10,222	327·0	34·6	510	207·5	2700	25,772	19·4	2184	11·9	1747	9·0	1406	6·9
12-in. B.L.R.	I., II.	35	441	11,991	345·2	45·3	870	160·0	2100	26,596	14·2	1733	11·2	1433	8·8	1219	7·2
12-in. B.L.R.	III., IV.	40	493	17,096	392·2	52·1	870	237·5	2400	34,738	19·8	1994	13·3	1649	10·5	1376	8·3
12-in. B.L.R.	III., IV.	40	493	17,096	392·2	52·1	870	305·0	2600	40,768	18·5	2171	14·8	1801	11·7	1500	9·3
12-in. B.L.R.	V.	45	553	16,974	452·0	52·9	870	305·0	2700	43,964	19·4	2259	15·5	1877	12·3	1561	9·8
12-in. B.L.R.	VI.	45	553	14,970	452·0	53·6	870	340·0	2850	48,984	20·8	2393	16·6	1991	13·3	1653	10·6
12-in. B.L.R.	VII.	50	607	14,296	506·3	56·1	870	340·0	2950	52,483	25·7	2483	17·5	2071	13·9	1719	11·0
13-in. B.L.R.	I., II.	35	479	15,068	374·9	61·4	1130	180·0	2000	31,333	15·0	1679	12·0	1414	9·7	1221	8·1
14-in. B.L.R.	I.[1]	45	642	..	..	63·6	1400	365·0	2600	65,606	28·3*	..	23·4*	..	..	.	..
14-in. B.L.R.	II.[2]	50	700	.	..	82·2	1400	..	2800	76,180	..	..	27·4	..	..	.	..

[1] Pennsylvania class. [2] New Mexico class. Corrected to April, 1916. For the 16-in. gun see the Bethlehem table, *post*.

* Harveyized armour. † A short high-angle 3-in. gun has been produced for use in submarines. ‡ There is now a 4-in. 50-cal. anti-aircraft gun.

§ All battleships from the Delaware class onward now (1916) have this gun for torpedo defence, and use the same ammunition.

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BETHLEHEM STEEL CO.

ORDNANCE.

Table supplied by the Manufacturers, March, 1916.

Calibre.	Length of bore in Calibres.	Calibre.	Weight of Gun.	Weight of Projectile.	At Muzzle.		Penetration of Wrought Iron. (Gavre Formulæ.)	At 3000 yards Range			At 8000 yards Range.			Limiting ranges beyond which capped armour piercing projectiles will not penetrate hard-faced armour of 12 inches and 7 inches thickness. (Davis Formula.)		Calibre.
					Velocity.	Energy.		Dangerous Space for Target 25 feet high.	Energy.	Penetration of Krupp hard-faced armour by capped armour piercing projectiles, with normal impact. (Davis Formula.)	Dangerous Space for Target 25 feet high.	Energy.	Penetration of hard-faced armour by capped armour piercing projectiles, with normal impact. (Davis Formula.)	12-in. plate.	7-in. plate.	
inches.	calibres.	cms.	lbs.	lbs.	ft. per sec.	foot-tons.	inches.	yards.	foot-tons.	inches.	yards.	foot-tons.	inches.	yards	yards.	inches.
1·457	50	3·7	160	1	2150	32	..	..	..	..	..	..	..	..	..	1·457
1·851	50	4·7	550	3	2400	120	..	..	..	..	..	..	..	..	..	1·851
2·244	50	5·7	960	6	2400	240	..	..	..	..	..	..	..	..	..	2·244
3	50	7·62	1900	13	2800	707	..	..	..	..	..	..	..	..	..	3
4	50	10·16	tons. 2·6	33	2800	1,793	11·0	320	890	..	..	..	..	..	..	4
4	50	10·16	2·6	kilos. 14	3000	1,924	11·5	362	980	..	..	..	..	..	..	4
5	45	12·7	3·4	lbs. 50	2600	2,343	11·3	253	1,096	..	..	..	..	..	..	5
5	50	12·7	4·75	50	3000	3,120	13·8	371	1,514	..	..	..	..	..	..	5
6	45	15·24	7·2	105	2600	4,920	16·9	313	2,970	7·0	60	1,307	4·2	..	2,870	6
6	50	15·24	8·4	105	2800	5,707	18·8	374	3,478	7·7	71	1,543	4·6	..	3,890	6
7	45	17·78	12·7	165	2700	8,338	22·0	358	5,426	9·2	74	2,660	5·9	..	6,063	7
7	50	17·78	14·5	165	2900	9,619	24·4	422	6,263	10·1	87	3,130	6·5	..	7,063	7
8	45	20·32	18·6	260	2800	14,460	29·2	410	9,869	12·3	92	5,457	8·5	3,240	10,420	8
8	50	20·32	22·3	260	2900	15,160	30·7	441	10,616	12·9	100	5,885	8·9	3,950	11,235	8
9·2	50	23·37	30·4	380	2900	22,200	35·8	450	15,760	14·9	107	9,350	10·8	7,237	15,311	9·2
10	45	25·4	35·4	515	2800	27,990	40·5	429	21,080	17·2	106	13,160	12·8	9,075	Over 16,000	10
10	50	25·4	43·9	515	2900	30,020	42·6	453	22,671	18·0	114	14,394	13·6	10,000	"	10
12	45	30·48	53·8	870	2800	47,380	51·8	439	36,794	21·7	114	24,608	16·9	14,560	"	12
12	50	30·48	66·0	870	2900	50,720	54·4	476	39,990	23·0	123	26,495	17·7	15,596	"	12
14	35	35·56	57·4	1660	2150	53,190	50·4	244	44,660	22·3	70	33,650	18·7	Over 16,000	"	14
14	45	35·56	70·3	1400	2600	65,700	56·4	362	50,420	24·0	98	39,840	20·7	"	"	14
14*	50	35·56	82·2	1400	2800	76,180	62·0	471	62,100	27·4	117	43,590	21·9	"	"	14
15	45	38·1	90·0	1700	2600	79,760	64 1	390	65,330	27·0	100	46,300	21·8	"	"	15
16	45	40·64	96·0	2100	2500	91,110	67·3	400	75,700	28·5	94	61,130	23·3	"	"	16
18	30	45·72	60·0	2075	2150	66,490	49·4	235	52,750	21·1	63	36,365	16·7	15,100	"	18

Guns of 3-in. calibre or under are chambered for fixed ammunition with the powder and projectiles in brass cartridge cases. Guns from 3-in. calibre upwards, and including the 6-in. L-45 gun, can be chambered to use either fixed ammunition, or chambered to use loose ammunition with the powder in cartridge bags and the projectile separate from the powder. Guns above 6-in. calibre and including the 6-in. L-45 gun are chambered for loose ammunition. The breech mechanisms of all guns up to 8 in. are operated by the single motion of a hand-lever. Those of the larger guns are operated by the revolution of a crank. The 8-in., 10-in. and 12-in. L-50 guns and the 14-in. L-45 gun are for use in turrets and are of great weight at the breech in order to balance the long muzzles, so that a comparatively small barbette may be used.

* This is the gun to be mounted in the battleships New Mexico, Idaho and Mississippi.

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BOFORS GUNS.

Table supplied by the Manufacturers.

Calibre . . . . . cm.	30·5			28			25·4			24			21		
Calibre . . . . . in.	12			11·02			10			9·45			8·27		
Length of Gun . . . . cal.	50	45	40	50	45	40	50	45	40	50	45	40	50	45	40
Length of Gun . . . . in.	600 4	540·3	480·3	551·2	496·1	441	500	450	400	472·4	425·2	378	413·4	372	330·7
Weight of Gun . . . tons	50	44	40	39	35	30	29	26	23	24	22	19	16	14·4	12·8
Weight of Projectile . . . lb.	981	981	981	761	761	761	564	564	564	474	474	474	309	309	309
	772	772	772	595	595	595	445	445	445	375	375	375	249	249	249
Weight of Charge . . . lb.	266	239	213	205	184	164	153	138	123	129	116	103	84	75·8	67·5
Muzzle Velocity . . . ft.-secs.	2776	2625	2477	2776	2625	2477	2789	2638	2490	2789	2638	2490	2828	2677	2526
	3140	2969	2802	3140	2969	2802	3140	2969	2802	3140	2969	2802	3150	2979	2812
Muzzle Energy . . . ft.-tons	52583	47019	41877	40767	36452	32468	30536	27320	24349	25647	22944	20448	17174	15391	13705
Penetration of soft steel plate at muzzle de Marres formula . in.	39·8	36·8	33·9	36·4	33·6	30·9	32·9	30·3	27·9	30·8	28·5	26·2	26·7	24·7	22·7
Number of rounds per minute .	2	2	2	2	2	2	3	3	3	4	4	4	4	4	4

Calibre . . . . . cm.	19·4			15·24			12			10·5			8·7			7·5		
Calibre . . . . . in.	7·64			6			4·72			4·13			3·43			2·95		
Length of Gun . . . . cal.	50	45	40	50	45	40	50	45	40	50	45	40	50	45	40	50	45	40
Length of Gun . . . . in.	381·9	343·7	305·5	300	270	240	236·2	212·6	189	227·4	206·7	186	188·4	171·3	154·1	162·4	147·6	132·9
Weight of Gun . . . . tons	12·8	11·6	10·3	5·8	5·3	4·7	2·96	2·56	2·37	2·2	2	1·8	1·88	1·14	1·05	0·72	0·665	0·59
Weight of Projectile . . . lb.	251	251	251	112·4	112·4	112·4	59·5	59·5	59·5	39·7	39·7	39·7	22·7	22·7	22·7	14·5	14·5	14·5
	198	198	198	90·4	90·4	90·4	46·3	46·3	46·3	30·9	30·9	30·9	17·6	17·6	17·6	11·5	11·5	11·5
Weight of Charge . . . lb.	68·1	61·3	54·7	33·1	29·8	26·5	16·2	14·5	12·9	10·8	9·7	8·7	6·14	5·53	4·92	3·92	3·53	3·13
Muzzle Velocity . . . ft.-secs.	2786	2635	2487	2897	2749	2582	2789	2638	2474	2871	2733	2585	2864	2726	2582	2848	2717	2572
	3140	2969	2802	3235	3051	2884	3143	2973	2805	3251	3097	2933	3248	3084	2936	3215	3074	2907
Muzzle Energy . . . ft.-tons	13566	12136	10815	6565	5913	5215	3220	2881	2567	2267	2057	1841	1292	1169	1049	817	742·7	668·5
Penetration of soft steel plate at muzzle de Marres formula . in.	24·6	22·7	20·9	19	17·6	16·1	14·7	13·6	12·5	13·2	12·3	11·4	10·8	10·1	9·4	9·2	8·5	7·9
Number of rounds per minute .	5	5	5	9	9	9	11	11	11	15	15	15	17	17	17	20	20	20

Corrected to April, 1916.

Table Relating to Conversion of Measures.

Length.

Metric to English. | English to Metric.

I. Mètres	II. Yards.	III. Feet.	V. Inches.	V. Yards.	VI. Mètres.	VII. Feet.	VIII. Mètres.	IX. Inches.	X. Centimètres.
1	1·0936	3·2809	39·37	1	0·91438	1	0·30479	1	2·5400
2	2·1873	6·5618	78·74	2	1·82877	2	0·60959	2	5·0799
3	3·2809	9·8427	118·11	3	2·74315	3	0·91438	3	7·6199
4	4·3745	13·1236	157·48	4	3·65753	4	1·21918	4	10·1598
5	5·4682	16·4045	196·85	5	4·57192	5	1·52397	5	12·6998
6	6·5618	19·6854	236·22	6	5·48630	6	1·82877	6	15·2397
7	7·6554	22·9663	275·60	7	6·40068	7	2·13356	7	17·7797
8	8·7491	26·2472	314·97	8	7·31507	8	2·43836	8	20·3196
9	9·8427	29·5281	354·34	9	8·22945	9	2·74315	9	22·8596

Explanation.—To convert any number from one measure to the other, take the values of the different multiples of 10 by shifting the position of the decimal point, and add together. Thus, find the number

of yards in 2354 mètres (see cols. I. & II.).
mètres. yards.
2000 = 2187·3
300 = 328·09
50 = 54·68
4 = 4·37
∴ 2354 = 2574·44

of feet in 12·4 mètres (see cols. I. & III.).
mètres. feet.
10 = 32·809
2 = 6·562
0·4 = 1·312
∴ 12·4 = 40·683

of inches in 30·5 centimètres (see cols. I. & IV.). Note, 1 m. = 100 cm.
cms. inches.
30·0 = 11·811
·5 = ·197
∴ 30·5 = 12·008

of mètres in 1026 yards (see cols. V. & VI.).
yards. mètres.
1000 = 914·38
20 = 18·29
6 = 5·49
∴ 1026 = 938·16

of mètres in 1742 feet (see cols. VII. & VIII.).
feet. mètres.
1000 = 304·79
700 = 213·36
40 = 12·19
2 = 0·61
∴ 1742 = 530·95

of centimètres in 17·72 ins. (see cols. IX. & X.).
inches. cms.
10·0 = 25·400
7·0 = 17·780
0·7 = 1·778
·02 = ·051
∴ 17·72 = 45·009

Note.—A ready way of approximately converting all French measures into English inches is to multiply by 4 and apply the decimal point by common sense—Thus for a 15-cm. gun; 15 × 4 = 60. Now this Calibre cannot be 60 inches, nor can to be 0·6 inch; therefore it must be 6 inches. (The exact value is 5·906 in.)

Weight.

Metric to English. | English to Metric.

I. Kilo-grammes	II. Tons.	III. Pounds Avoirdupois.	IV. Grains Troy.	V. Tons.	VI. Milliers.	VII. Pounds Avoir-dupois.	VIII. Kilo-grammes.	IX. Grains. Troy.	X. Gramme
1	·000984	2·2046	15432·3	1	1·016	1	0·4536	1	·0648
2	·001968	4·4092	30864·7	2	2·032	2	0·9072	2	·1296
3	·002953	6·6139	46297·0	3	3·048	3	1·3608	3	·1944
4	·003937	8·8185	61729·4	4	4·064	4	1·8144	4	·2592
5	·004921	11·0231	77161·7	5	5·080	5	2·2680	5	·3240
6	·005905	13·2277	92594·1	6	6·096	6	2·7216	6	·3888
7	·006889	15·4323	108026·4	7	7·112	7	3·1751	7	·4536
8	·007874	17·6370	123458·8	8	8·128	8	3·6287	8	·5184
9	·008858	19·8416	138891·1	9	9·144	9	4·0823	9	·5832

Explanation.—To convert any number from one measure to the other, take the values of the different multiples of 10 by shifting the position of the decimal point, and add together. Thus, find the number

of tons in 35 milliers (see cols. I. & II. Note, 1000 kg. = 1 millier).
milliers. tons
30 = 29·53
5 = 4·92
∴ 35 = 34·45

of pounds in 56·3 kilo-grammes. (see cols. I. & III.)
kgrms. lbs.
50 = 110·231
6 = 13·228
0·3 = ·661
∴ 56·3 = 124·120

of grains in 120 grammes (see cols. I. & IV. Note, 1000 grms. = 1 kg.)
grammes. grains.
100 = 1543·23
20 = 308·65
∴ 120 = 1851·88

of milliers in 38 tons (see cols. V. & VI.).
tons. milliers.
30 = 30·48
8 = 8·13
∴ 38 = 38·61

of kliogrammes in 68 pounds (see cols. VII. & VIII)
lbs. kgs.
60 = 27·216
8 = 3·629
∴ 68 = 30·845

of grammes in 85 grains (see cols. IX. & X.).
grains. grammes.
80 = 5·184
5 = 0·324
∴ 85 = 5·508

Note.—7000 grains troy = 1 pound avoirdupois.

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PRESSURE.

Metric to English.			English to Metric.				Atmospheric to English.		English to Atmospheric.	
I. Kilogrammes per square centimètre.	II. Pounds per square inch.	III. Tons per square inch.	IV. Pounds per square inch.	V. Kilogrammes per square centimètre.	VI. Tons per square inch.	VII. Kilogrammes per square centimètre.	VIII. Atmospheres.	IX. Tons per square inch.	X. Tons per square inch.	XI. Atmospheres.
1	14·223	·00635	1	·07031	1	157·49	1	·00656	1	152·38
2	28·446	·01279	2	·14062	2	314·99	2	·01313	2	304·76
3	42·668	·01905	3	·21003	3	472·48	3	·01969	3	457·14
4	56·891	·02540	4	·28124	4	629·97	4	·02625	4	609·52
5	71·114	·03175	5	·35155	5	787·47	5	·03281	5	761·91
6	85·337	·03810	6	·42186	6	944·96	6	·03938	6	914·29
7	99·560	·04445	7	49217	7	1102·45	7	·04594	7	1066·67
8	113·783	·05080	8	·56248	8	1259·95	8	·05250	8	1219·05
9	128·005	·05715	9	·63279	9	1417·44	9	·05906	9	1371·43

NOTE.—One atmosphere is taken to be 14·7 lb. per square inch.

EXPLANATION.—To convert any number from one measure to the other, take the value of the different multiples of 10 by shifting the position of the decimal point, and add together. Thus, find the number

of pounds per square inch in 32·1 kilogrammes per square centimètre (see cols. I. & II.).		of tons per square inch in 3210 kilogrammes per square centimètre (see cols. I. & III.).		of kilogrammes per square centimètre in 15 lbs. per square inch (see cols. IV. & V.).		of kilogrammes per square centimètre in 18 3 tons per square inch (see cols. VI. & VII.).		of tons per square inch in 3254 atmospheres. (see cols. VIII. & IX.).		of atmosphere in 14·6 tons per square inch (see cols. X. & XI.).	
kgs. per sq. cm.	lbs per sq. in.	kgs. per sq. cm.	tons per sq. in.	lbs. per sq. in.	kgs. per sq. cm.	tons per sq. in.	kgs. per sq. cm.	atmospheres.	tons per sq. inch.	tons per sq. in.	atmospheres.
30 =	426·68	3000 =	19 05	10 =	·7031	10 =	1574·9	3000 =	19·69	10 =	1523·8
2 =	28·45	200 =	1·27	5 =	·3516	8 =	1259·95	200 =	1·31	4 =	609·5
0·1 =	1·42	10 =	·06			0·3 =	47·25	50 =	·33	0·6 =	91·4
								4 =	·03		
∴ 32·1 =	456·55	∴ 3210 =	20·38	∴ 15 =	1·0547	∴ 18·3 =	2882·10	∴ 3254 =	21·36	∴ 14·6 =	2224·7

ENERGY.

Metric to English.		English to Metric.	
I. Mètre-tons.	II. Foot-tons.	III. Foot-tons.	IV. Mètre-tons.
1	3·2291	1	0·3097
2	6·4581	2	0·6194
3	9·6872	3	0·9291
4	12·9162	4	1·2388
5	16·1453	5	1·5484
6	19·3743	6	1·8581
7	22·6034	7	2·1678
8	25·8324	8	2·4775
9	29·0615	9	2·7872

1 mètre-ton is termed a "dinamode" in Italy.

EXPLANATION.—To convert any number from one measure to the other, take the values of the different multiples of 10 by shifting the position of the decimal point, and add together. Thus find the number

of foot-tons in 4367 mètre-tons (see cols. I. & II.).		of mètre-tons in 3592 foot-tons (see cols. III. & IV.).	
mètre-tons.	foot-tons.	foot-tons.	mètre-tons.
4000 =	12916·2	3000 =	929·1
300 =	968·72	500 =	154·84
60 =	193·74	90 =	27·87
7 =	22·60	2 =	·62
∴ 4367 =	14101·26	∴ 3592 =	1112·43

PERFORATION THROUGH IRON AND STEEL WITH THE FACE NOT HARDENED.

To obtain perforation through steel equivalent to a given perforation through iron, and *vice versa*.

1 inch steel = 1¼ inches iron;

that is, 4 inches steel = 5 inches iron.

Thus, given 9·4 inches perforation through iron,

$$9{\cdot}4 \times \frac{4}{5} = 7{\cdot}52 \text{ inches steel;}$$

or, given 5·2 inches steel,

$$5{\cdot}2 \times \frac{5}{4} = 6{\cdot}5 \text{ inches iron.}$$

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PART IV.

STATISTICS, OFFICIAL STATEMENTS AND PAPERS.

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PART IV.

As in the *Naval Annual* of last year, this part, previously mainly devoted to the British Navy Estimates and the Navy Estimates of the principal Powers, was occupied with official statements throwing light upon the conduct of the War, so in the present War Issue of the *Naval Annual* the same procedure is followed. The papers, extracts, and summaries here included are: (I.) The First Lord's Speech on the Estimates, March 7, 1916; (II.) A Note on the Correspondence between Great Britain and the United States; (III.) The American Note of November 5, 1915; (IV.) Admiralty Statement on British Blockade Policy; (V.) The Lusitania Finding and German Allegations; (VI.) Third American Note to the German Government; (VII.) German Note on Submarines in the Mediterranean; (VIII.) The New German Threat; (IX.) Admiralty Statement on the Instructions given to Armed Merchant Vessels; (X.) Lists of Unarmed Vessels Torpedoed; (XI.) Official Despatches and Reports on the Operations—Dardanelles and Belgian Coast.

I.

FIRST LORD'S SPEECH ON THE NAVY ESTIMATES.

MARCH 7, 1916.

[*Extract.*]

ONLY once before in the history of this House have we met together to discuss the Navy Estimates under anything like the present conditions, and the solitary precedent, I need hardly say, was the precedent set last year by my right hon. and gallant friend (Col. Churchill), then in the position of First Lord of the Admiralty. The peculiarity of the situation is that, whereas in normal years of peace we meet with preoccupations of finance in our minds, questions as to the particular class of ships which ought to be built, with discussions as to the precise number of men that are required, and that whereas the Committee of the House, when the House goes into Committee on the Navy Estimates, is largely occupied with dealing with details of the Estimates on those questions—at a time of war that is impossible, and its impossibility could not be more clearly

Token votes.

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demonstrated than by the shape in which the Estimates have been laid before the House. I have copied the precise form adopted by my predecessor. The House will find no details of expenditure under the various heads, and we work solely with token votes, and the discussion to-day will, I am sure, by common consent refrain from touching all details which are not only permissible in time of peace, but are of the first necessity. Now we have to deal with more general considerations, and the House will neither ask me to go into details, nor will it tolerate my doing so. It would, I am confident, feel that I was, in endeavouring to explain the course the Government had taken, far exceeding the duties which fall to the First Lord of the Admiralty in the time of a great war.

An International Fleet.

General direction of policy.

The task, as I conceive it, which I have to pursue to-day is of quite a different character. My business is rather to give the House, as far as it is consistent with the public interest so to do, a general impression of the course which the Admiralty have pursued and are pursuing to enable us to carry effectively the vast responsibilities which at the present moment rest upon the British Fleet—responsibilities which extend far beyond the needs of defending our shores, or even of protecting our commerce—needs which are in no sense of less extent than the whole of that great Alliance which is now carrying on war against the Central Powers of Europe. Our Fleet is now an international Fleet, not merely a British Fleet. They are carrying on international duties, and many nations depend upon us. In this survey, which will in no sense be a detailed survey, I shall not think of going farther back than the beginning of the war.

Continuous Policy.

The policy of the Admiralty, so far as I understand it, under the present Board is directly continuous of the policy of its predecessors. I have indeed heard suggestions that when the present Board came into office there was a sudden stoppage of naval activities under the head of shipbuilding, and that the new Board were content to rest on the labours of their predecessors, and that it was supposed that all that ought to be done had been done, and nothing more was required, and that we should reap where they had sown. There never was a more singular misstatement of fact. Let me here say quite distinctly that there is absolutely no truth in the suggestion, and that, so far as our activities in the direction of adding to our naval force are concerned, we have pursued to the utmost of our ability the broad

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general lines marked out for us by the distinguished Board which went before us.

First Problems of the War.

Maintaining the Grand Fleet. German cruisers destroyed.

When my right hon. and gallant friend first had to deal with the situation, what were the great problems that met him? The first of those problems is one which is common to every Admiralty: it is the problem of maintaining what we now know as the Grand Fleet in adequate superiority over every force that could be brought against it—in other words, the problem of maintaining the command of the sea. That problem is common to all Boards of Admiralty, and, in my opinion, my right hon. and gallant friend was amply justified in saying when he reviewed the circumstances which accompanied the outbreak of hostilities in August, 1914, that the Fleet which had been prepared by the Board of which he was the head and its predecessors was adequate for this great task of maintaining the command of the sea. But, in addition to that—the common task of all Admiralties—the greatest responsibility that was thrown on my right hon. friend, probably, I conceive, was that of dealing with the German cruisers who were preying upon our commerce in various parts of the world. That was a very difficult, anxious, and laborious task, and it was carried out with complete success. The final act in the drama, which went on from the very day on which hostilities began, was the destruction of the Königsberg, which had taken refuge in an East African river. That fell after the time when my right hon. friend had ceased to be First Lord of the Admiralty, but all the really important work, without exception, connected with this destruction of the German cruisers was done in what I suppose we must now call the early months of the war. It was done with complete success, and at this moment there is no German cruiser—I do not speak of German raiders like the Möwe—belonging to the German Fleet which is in a position to menace British commerce on any of the oceans of the world.

What the Fleet Has Achieved.

Transport of the Expeditionary Force.

That may be described as the first phase of the war. Early in 1915, about the time when the last Navy Estimates were presented, a wholly new set of problems began to rise into paramount importance. In the early days of the war the sea had to be kept open for the transport of the Expeditionary force to France—150,000 or 160,000 men, who constituted the first instalment of the great forces that we have subsequently sent there. The task of carrying 160,000 men and supplying them with stores and ammunition, although it

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would have seemed a very difficult and laborious task to our forefathers, is absolutely insignificant compared with the task which we have taken upon ourselves in ever-increasing magnitude since the operations in the Mediterranean began. In addition to the enormously augmented supplies of men sent to France, we have had to maintain and transport the Army in Gallipoli, the large force connected with Egypt, and the large force connected with Salonika. We had not merely to transport them, but to supply them and to feed them. In addition to that, the blockade of Germany and the blockade of Turkey were tasks which were thrown upon the British Fleet.

Transport work and enemy submarines.

The increasing importance of the northern ports of Russia was day by day being forced upon our notice. And last, but not least, the appearance of the submarine in the Mediterranean as well as in Home waters added greatly to the responsibilities and the anxieties of those who had undertaken this colossal task of transporting and provisioning great armies in different theatres of operations. If you take the distance between Archangel in the north and Alexandria in the eastern base of the Mediterranean you will find that distance to be about 5000 miles, and that 5000 miles had in a large part to be guarded solely by the British Fleets, and in another part had to be guarded by British Fleets combined with those of our Allies, but in a manner which threw necessarily an immense strain upon the British Fleet. About 4,000,000 combatants have been transported under the guardianship of the British Fleet, 1,000,000 horses and other animals, 2,500,000 tons of stores, and, in addition, 22,000,000 gallons of oil for us and for our Allies. That that colossal operation threw an immense strain upon the British mercantile marine is obvious and is known to all. That, however, is not the aspect of the question to which I wish to refer to now. All this, in the presence, not of German cruisers, but of German submarines, threw an enormous task upon the British Navy which could hardly be foreseen, still less provided against, in the first days of the war. Those responsibilities were borne partly by the late Board of Admiralty and partly by the present Board, and those responsibilities have been, I think, not unsuccessfully carried out. If you had put the matter before some professor of the theory of warfare or some student of military and naval history I do not believe he would for a moment have admitted the possibility, in the face of the special difficulties with which we had to deal, of maintaining these enormous armies in Egypt, the Dardanelles, Salonika, to say nothing of Mesopotamia, or of the Colonial operations in East Africa or in the Cameroons—of carrying out such operations without suffering immense losses, even if the

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operations could be carried out at all, in any circumstances, with the resources at the disposal even of the greatest Naval Power in the world.

I think we may look back with satisfaction upon the manner in which this vast task has been carried through. It was novel in character, unexampled in magnitude; the dangers to be met with were relatively new dangers; they had never been experienced in practice, and on the whole I think everybody who has been connected with these transactions in the Admiralty and in the Navy has reason—I do not say to be satisfied—but to be pleased with the result.

Situation of the Fleet.

Unrelaxed endeavours.

The question arises—it is strictly relevant to this Vote—what has this country done to deal with the situation that thus arises? My right hon. and gallant friend when he was making his statement on the Navy Estimates last year used these words:—"On the declaration of war we were able to count upon a Fleet of sufficient superiority for all our needs with a good margin of safety in vital matters, fully mobilized, placed at its war stations, supplied and equipped with every requirement down to the smallest detail that could be foreseen." In my opinion that was a very great boast to make. I think it was a boast that was amply justified. I do not think justice has yet been done either to the preparations made by the Committee of Imperial Defence or to the preparations made by the Admiralty for such a sudden and unforeseen emergency as had to be dealt with in the first week in August. When the time comes for an impartial survey of the history of this war, when people cease to occupy their time in detecting errors here and deficiencies there, it will be admitted that the Navy and the Committee of Imperial Defence, and the Army, so far as the Expeditionary Force is concerned, did all, and more than all, that any prophet could have expected. What they professed to themselves and to the world that they were able to do, that they did, and they did it in a manner that reflects the greatest credit upon those who were responsible for seeing the kind of emergency that might occur, and for devising methods by which that emergency could be met.

Then it may be said, if when the war broke out we were, in the words of my right hon. friend (Colonel Churchill), able to count upon a Fleet of sufficient superiority for all our needs, and with a good margin of safety in vital matters, was it necessary thereafter to make any great or sustained effort to increase the

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strength of the Fleet thus adequate, and more than adequate, for the immediate necessities at the outbreak of hostilities? That is a view that might be plausibly argued, but, fortunately for the country, it has never been the view of the Board of Admiralty. They have never been content with the weapon with which they found themselves possessed. Each of the three Boards of Admiralty which have been in existence since the war broke out have never relaxed their desire to increase the strength of that weapon. They have never been content to rest upon the work which they or their predecessors have done, but they have made every effort to increase the value of that mighty maritime weapon, on which the liberties of the world have in the past depended, and now more than ever depend.

Expansion of the Navy.

Enormous developments.

We rightly boast, I think, of the prodigious effort which the nation has made to create out of an Expeditionary Force a vast national Army, and certainly it is a most notable performance; but let us not, through interest in the Army, forget that the Navy also has enormously expanded since the outbreak of hostilities. The Navy, as described by my right hon. friend, deserved all the eulogies he passed upon it, but that Navy has been entirely surpassed by the Navy which this country and its Allies now find at their disposal. I do not propose to go into details about the size of the Fleet, but, after all, it is a very fair measure of the growth of the Navy to say that the *personnel* required by the Navy has, broadly speaking, doubled since the war began. If I remember rightly, the Navy Estimates of 1914 were for about 140,000 men, without reserves. I suppose now, excluding the Naval Division, we have about 300,000 men. We have taken power to raise the total number to 350,000, including the Naval Division, but, broadly speaking, at this moment there are about 300,000 men engaged in strictly naval work. That is an enormous growth, and it may be taken as a kind of rough measure of the growth of the Navy. If I add in the tonnage of the Navy, including auxiliary cruisers and all ships under the white ensign—all ships which are actually used as ships of war—I find that the Navy has increased by well over a million tons since the war broke out. These figures show quite conclusively that I was justified when I said no Board of Admiralty was content with the Fleet, however superior, which it found at the outbreak, and, until the enemy were finally defeated, would always insist on augmenting its naval power.

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The Naval Air Service.

Col. Churchill and the Air Service.

Now let me say a little more upon some details of these preparations. Let me begin with the Air Service. The Air Service in the Navy entirely owes its origin to my right hon. friend (Colonel Churchill). Do not let us look back upon the past with all the fruits of our present experience, and say this is what clearly ought to have been done or ought not to have been done. It is enough for me to point out that, long before the use of aircraft had been proved by experience, my right hon. friend foresaw the important part it was going to play, and set himself to work to lay deep the foundations of a Naval Air Service. Anyone who has had the opportunity which I have had of examining the work which has been done in this connexion in the Admiralty is aware how much that service owes to the unremitting labour and unceasing personal attention which my right hon. friend gave to this particular branch of his duties. He was not content to leave it to others to do, and, indeed, I suspect that if, in an old-established and traditional office like the Admiralty, this question had been left entirely to what I may call the traditional routine of the office, the Air Service would have made nothing like the progress it did under the fostering care of my right hon. friend. But the growth which I have just indicated as regards the ships of the Navy has been at least as noticeable in regard to aircraft. Since August, 1914, I think I am not wrong in saying that the strength of the air forces of the Navy has grown tenfold. That necessarily involved some alteration of organisation: that which was suited to the infancy of this branch of the work becomes quite unsuitable when it reaches a certain expansion.

Training of Airmen.

Although nothing essential has been changed, I think I may say without fear of contradiction that some modifications suited to the enormous growth of the service have been introduced with considerable advantage. Among other things, we found that the means of educating airmen was necessarily inadequate when you had to deal with a growth of such immense rapidity, and a growth which was taking place not merely in the Navy but in the Army. At one time the Navy and the Army more or less pooled their efforts in the matter of education. I need not trace the various modifications which have taken place on the original system. It is enough to say that with the sanction of the Treasury the Admiralty purchased, some months ago, a large tract of land very suitably situated—I will not say where it is—for purposes of training in flying,

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and that we have secured the services of Commodore Paine, who has done such admirable work in this connexion for the Army. I do not doubt for a moment that under his supervision, and with all the facilities which, to the best of our ability, we are placing at his disposal, an immense growth in education in air matters will be the result of our efforts.

Need of a Separate Naval Service.

A separate air service a naval necessity.

It has been said by many people, Why, after all, should the Navy have an air service at all? I do not mean to touch even remotely upon the vexed question of whether there should or should not be a separate Minister for the Air. I content myself with saying, what I think is indisputable, that whether there be a separate Minister for the Air or not, the Navy will always require a special service for its own purposes, however it be provided and whoever may superintend it. Its work is largely different from that of the Army. I do not deny that the Navy often does things which could be done by the Army, had the Army been at the moment provided with the necessary materials; but undoubtedly the Navy must have its share in air work when the operations are partly or wholly naval.

The training of a naval airman is the same, indeed, as that of an Army airman in its early stages, but differentiates as time goes on. He has not to learn all the same things; he has to learn things which are perfectly useless to an Army airman during the ordinary course of his duties. No Army airman, for example, is required ever to use a seaplane. No Army airman need learn how to distinguish the various types of shipping, enemy and friendly, which have to be discriminated if he is to be a good scout over the sea. There are these and many other functions in which the training must be different for the two branches of the Service, and whether you put them ultimately under one Minister or not, that difference, in my opinion, never will be obliterated.

Advantage of Two Departments.

It would be a very strong order to say that there never has been any overlapping in the work of the Army and the Navy, but I am absolutely convinced that, whatever may be true of the future, in the past it has been an immense gain that there have been two separate Departments dealing with all the nascent and early problems of this growing branch of warfare. It is all in its infancy. No one could tell you on March 5, 1916, what the developments will be on March 5, 1917. Nobody could have told you when war broke out in August, 1914, how in a year the type, the work, and the capabili-

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ties of the machine would have altered, and the very views we take on the whole Air Service would have suffered profound modification. I am quite certain that had the whole of this been left, for example, to the Army, immense developments in engine power and matters connected with the size and lifting power of the machines would have been undeveloped, not because the gentlemen connected with the Army Air Service were less competent than those connected with the Navy, but because the problem of dealing with heavy aeroplanes came before the Navy earlier and in a more insistent shape than it could come before the Army. The very fact that you have to use the seaplane, which must always be heavier than the lighter type of aeroplane, and the question of developing engine power, the question of developing economy of petrol, and the problems connected with the rapid improvement of the internal combustion engine for flying purposes have beyond doubt gained from the fact that the Navy threw themselves into this task from their own point of view and with their own objects, and to the immense advantage, in the end, both of the Navy and the Army. I need hardly say that this does not in any sense suggest that we ought not to establish such a committee as the Prime Minister has in fact appointed, by which the question of supply as between the two Services can be properly arranged. I am dealing with far deeper questions than that, and in a sense with far more interesting questions—the rapid development, in the face of an active enemy, of various types of flying machines which the Navy and the Army alike require.

Naval Airships.

There is one branch of the Air Service which the Army have deliberately handed over to the exclusive patronage of the Navy—I mean the lighter-than-air craft. Here, also, there has been a great development since the war began. As the Committee knows, it was decided—rightly or wrongly—in years gone by—I think myself wrongly, though I certainly do not blame the people who came to that decision—that it was not worth our while to deal with the complicated and costly question of Zeppelins. I do not believe that any prophet now living could say with confidence what the future relation between the Zeppelin and the heavier-than-air machines is going to be. Both are improving, and perhaps the improvement in the heavier-than-air machine is more rapid and more certain than the improvement of the Zeppelin.

Airships for scouting.

It may conceivably be that ten years hence people will refer to the Zeppelin as an antiquated instrument, and say, "You ought to rely entirely upon increasing the magnitude and the power of your

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heavier-than-air machines." On that I make no prophecy, I venture no forecast. All I say is that at this moment it is extremely desirable that we should have lighter-than-air machines from the naval point of view in order to supplement the efforts of our Fleet by machines for scouting which, in many respects and in favourable weather, are far more effective than the swiftest destroyer, or the most powerful cruisers. Therefore we have done, and we are doing, our best to develop the lighter-than-air machine. The difficulty, to me rather an unexpected one—I am not talking of Zeppelins now, but of non-rigid types—is not so much in constructing the instrument as in housing it. In the present condition of labour throughout the country the length of time taken to build an adequate shed and shelter for these instruments is what is really checking their use.

The kite-balloon, which also has been handed over by the Army to the Admiralty, has undergone great and growing development. I do not know what the ultimate limits of its utility are, but I am persuaded that we shall find more and more use for it at sea, and that the extraordinary change which has gone on in the last twelve months in the use of the kite balloon is symptomatic of the value which it will have, not merely in land operations, but in sea operations also.

Accelerating Shipbuilding.

Great number of ships turned out by builders.

I leave the Air Service and come to what is more familiarly germane to this Vote—namely, the question of ships. I mean simply to lay down certain general propositions. At no time in our history has so great an amount of the shipbuilding capacity of the country been used for the production of ships of war as during the nineteen months that have elapsed since hostilities broke out. Practically we may almost say that during most of these nineteen months very little was built in our shipbuilding yards for the merchant service; relatively hardly anything; and the building resources of the naval yards and the shipbuilding yards, both of those devoted habitually to ships of war and those devoted habitually to merchant ships, have been used to the utmost of their capacity for producing ships absolutely necessary for naval purposes. There never has been a time when so many ships have been turned out, or when the speed of turning them out has been equalled. The whole process of making ships of war has been speeded up, and never has it run at such a speed as it is running at the present moment. Never has there been a greater desire on the part of the Admiralty to vary the types of ships according to the new and pressing necessities of the moment.

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Need of More Small Craft.

Quite early in the war the necessity of building smaller craft and increasing the number of our destroyers and of our light cruisers, and so forth, was foreseen by the Admiralty. They set to work at once on that, as on many other points connected with shipbuilding, and that policy, begun many months ago, has continued without rest or intermission ever since. The shipbuilding resources of the country are not only being used to an absolutely unexampled extent in making ships of war, but they are also being used to an absolutely unexampled extent in carrying out the necessary repairs for the Fleet. Repairs depend very much, especially in the case of more delicate and fast-running vessels, on the use and speed to which you put your ships. In peace time you may run vessels of war at what is called economic speeds, but in war time you do not run at economic speed; you run at very uneconomic speed. Not only do you run at very uneconomic speed, but the amount of steaming done is much greater in war time, and the result is that your growing Fleet not only requires more repairs, because it is a growing Fleet, but it requires more repairs because it undergoes a strain in war time which it neither can nor ought to undergo in times of peace.

The Fleet stronger than before.

The result of all this effort is that, with one exception, the Fleet is far stronger than it was when war broke out. That exception is armoured cruisers. We have lost some armoured cruisers and we have not replaced them. But in armoured cruisers our superiority is enormous and is uncontested. In every other branch of ships of war, in Dreadnought battleships, in Dreadnought cruisers, in light cruisers, in flotilla leaders, in destroyers, in submarines, in sloops, and all the vast and growing class of patrol boats, there has been a most notable augmentation since the beginning of the war, and that augmentation has suffered, and is suffering, no check.

I believe that what I have said about ships I can say about guns. The number of naval guns has greatly grown, and the ammunition for those guns has greatly grown, both absolutely and relatively to the guns which it has to serve. In all the warlike stores necessary for success in naval operations we are much better off now than we were at the beginning of the war, and as our ships have increased and are increasing, so our stores, our ammunition, and our guns have increased, are increasing, and will increase. I trust that that communication will be not unsatisfactory to the House.

Shipbuilding and Limits of Labour.

But they may ask whether, if this vast growth has gone on, we have got enough. They may say—Are you satisfied, are your

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The limit of labour.

professional advisers satisfied with the ships of war at their disposal? The answer to this is in the negative. The very fact that we are pressing on building, the very fact that we are finishing vessels that are on the stocks and laying down new vessels, shows that we are not satisfied, and that, infinitely stronger as we are than when my right hon. and gallant friend made the statement which I have read to the House with reference to the first weeks of the war, there are still deficiencies in certain kinds of ships which the Board of Admiralty are most anxious to fill up, and are filling up, as rapidly as they possibly can. But there are limits, not to our will, but to our power. The limit is the limit of labour. It is not the limit of empty slips, not the limit of machinery, not even the limit of material, though material infinite in quantity is not available. No; the real limit is put upon us by labour. But up to the limits which labour offers us we are doing all that can be done in the way of shipbuilding for national necessities.

Contractors and the Situation.

The position of contractors.

Occasional remarks reach my ears to the effect that contractors say—they say it privately, as it were unofficially—"It is all very well for the Government to say that they are using the yards up to the utmost of their power. My firm would like to take on another ship." I have examined such cases where the rumour has reached me, and I find that it always resolves itself into one of two things: either they mean that if the Government will procure them more labour they can build more ships, or that the actual ships which the Government order are not ordered with a view of getting the greatest final results out of the shipbuilding yards of the country. It is quite true that in peace time the Admiralty necessarily and rightly think a great deal of so arranging their orders as to suit the convenience of the great contractors, not merely for the sake of the contractors, but because it is a matter of vital national necessity that the armament trade and the great shipbuilding contract yards should be prosperous and effective; and successive Controllers and First Sea Lords always desire to arrange their orders so that the maximum of efficiency can be obtained. In time of war we cannot think of that in the main; very often we cannot think of it at all. I have found in discussing this matter with those who are responsible, that when they say that more could be done in the yards they mean one of the two things which I have said—"Give us more labour and we will give you more ships," or "Alter the character of your orders and the shipyards will be more productive." I believe that both those propositions are true, but they do not militate against my statement

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that we are getting all that we can in a given time in warships out of the yards which the yards can give us.

Merchant Tonnage.

I come here to the very fringe or the frontier of another question of the deepest moment, which is not relevant to this debate—the provision of merchant tonnage. I do not wish to touch on that, but this I may say, that the very fact that the Admiralty since 1914 have been going to all kinds of yards—those which build merchant ships as well as those which build warships—has cut at the root of the normal working of our resources for the turning out of merchant tonnage. The problem is one of great difficulty. It is occupying the most earnest and serious attention of the Government, but it is not relevant to Vote A of the Navy, and I do not propose at this moment to say another word upon it.

The Naval Division.

Personnel.

If I pass now from these generalities—and I do not pretend that they are more than generalities, but they are very important—about shipbuilding, to the question of men, I have not much of novelty to lay before the House. As regards the Naval Division, I ought perhaps to say something. The Naval Division was the creation of my right hon. friend opposite (Col. Churchill), and it has covered itself with glory in the fighting which took place in Gallipoli and elsewhere. It was raised at a time when the problem before the country was, how most rapidly and most effectively to increase our land forces, and, of course, it is a land force in all essentials. It is under naval discipline, and paid at naval rates of pay, there are naval rates of separation allowance, and it is under the Board of Admiralty. The wastage, of course, has been great, because the wastage of war is always great, and because the very splendour and gallantry of the operations which the Naval Division has performed have very sadly thinned its numbers.

Establishment of the Naval Division.

The present basis on which the Admiralty propose to deal with this force is this. I think, if I remember rightly, there are about 27,000 men altogether in it at the present moment. We propose to keep a full strength of six battalions. It will be seen therefore that for the present no recruiting is required. We are in excess of the numbers necessary to keep up the force to six battalions. Gradually there will be a balance reached between the battalions that have to be kept up and the reserves upon which they are kept up, and when that time is reached, unless some change of policy occurs, recruiting

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will have to be resumed. At present we are keeping these battalions up to their full strength and no recruiting is necessary.

The Grand Fleet.

Health and spirit of the Fleet.

I turn now to the more strictly naval question of the Grand Fleet. The reports which I have received leave absolutely no doubt that the condition of health of the men and their discipline leave absolutely nothing to be desired. I believe that, in spite of eighteen or nineteen months of war, of hardship, and of long hours of duty, the health of the Fleet was never so good as it is at the present time, and there is not a single independent observer who does not confirm the view presented to me by responsible naval officers that the discipline is in every respect admirable. The Grand Fleet have not as yet had great opportunities, opportunities in conformity with the great organisation of which they form part, of showing in the face of the enemy how good they are. There have been actions, and so far as those actions give us the means of judging, we can say with perfect confidence that in knowledge of their profession, in enterprise, courage and skill, they are as eminent as they are invincible. In all the relatively small actions which have taken place they have always given promise of what I doubt not for one instant they will be when greater trial comes upon them.

We have had more opportunity of judging what I might call the independent work of officers and men in the submarines in the Sea of Marmora and the Baltic, the mine-sweepers, the armed trawlers, the vast numbers of men who alone and unsupported, in circumstances of great difficulty, often of great peril, have done work of incalculable value to the country. I am afraid I cannot do justice to all that I feel about the work of these men. Necessarily, it is little known to the public. They do not work in the presence of great bodies of men, to admire and applaud them for their gallantry. Small crews in stormy seas suddenly face to face with unexpected peril, they never seem to me to fail. No danger, no difficulty is too great for them. The debt of this country to them is almost incalculable.

Tribute to the Mercantile Marine.

Services of captains and crews of the merchant marine.

There is outside the limits of this Vote another class of seaman whom I cannot leave unmentioned. I mean the members of the mercantile marine. I do not refer to those who are working practically under the White Ensign, who, in the cordon of blockade vessels or elsewhere, are doing day and night service to their country.

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I refer to another class who are serving their country, but who are not under the White Ensign—the captains and crews of transports, the captains and crews of ordinary merchant and cargo vessels, who also, through the action of a ruthless and unscrupulous enemy, have their dangers to undergo. I am not aware that any of them trouble their heads about peril until they meet it, and when they meet it they know how to deal with it. To them also I would, on behalf of the Admiralty, and, if I may venture to do so, on behalf of the House also, tender my hearty thanks. The country is not ignorant of their services, it is not ungrateful to them. On them we depend not less than on our armed forces for maintaining the necessary economic basis upon which all war must ultimately be waged.

Admirals in Command.

Smooth working of the Naval machine.

Before leaving the subject of *personnel* may I say something about the higher command? Let me tell the House what they do not require to be told—namely, that the higher command are showing themselves worthy of the immense responsibility which has been thrown upon them, and that in the Commander-in-Chief and the other Admirals having commands attached to them, the country finds itself possessed of servants admirably qualified to carry out their work, and to whom we may with easy hearts and consciences entrust the great responsibility of controlling our vast Fleets. It is to me a great consolation to think that the relations of the Admiralty with those high officers is now, and has ever been since I have had any knowledge of the subject, of the most intimate and cordial description. There is the freest exchange of ideas, and so far as the strategy and tactics of the forces at their command are concerned, I do not believe there ever has been the smallest difference of opinion between the Board of Admiralty and the Admirals in command in the different parts of the world. Smooth working of the machine is invaluable in times of stress and difficulty, and I do not think I am going beyond my province when I say that just as the Admiralty feel supreme confidence in the capacity, devotion, and public spirit of these various commanders, so my naval colleagues at the Board possess the confidence of the Fleet.

The Case of the Möwe.

I have surveyed as far as it is perhaps possible, under the conditions in which I am speaking, the topics dealt with in Vote A and Vote 1. I think I have sketched the general naval position. What conclusion ought to be drawn? How ought we to feel, in this House and in the country, in regard to our naval position in this great

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struggle? I do not quite understand the German point of view. I see by the ordinary sources of information that Berlin has been beflagged for two or three days to celebrate the return of the Möwe. The Möwe is a tramp steamer, disguised and armed, which eluded our patrol going out, sank a certain number of unarmed merchant ships, and succeeded in getting back. I have no doubt both the captain and the crew of the Möwe showed seamanlike qualities and enterprise, but if the return of the Möwe, after these triumphs, is the subject on which the capital of a great Empire is to beflag itself for some days, I am not sure that we may not draw the conclusion that their standard of achievements at the present moment is not a very high one. I do not wish to place upon faint indications of this kind any too confident notion as to our superiority, but I do not think that there is the smallest justification for a certain kind of sub-acid pessimism which now and then reached my ears from various unexpected quarters. I acknowledge, of course, that new methods of warfare make certain naval operations more or less incalculable. I grant, fully grant, that the utmost foresight, the utmost care, the most anxious prevision, will not preclude the occurrence of accidents and disasters now and then. I further grant that the discovery, or let me say the fuller recognition by our Allies, of the absolutely essential part which the British Fleet is playing in the present military operations is a fact that must increase our own anxiety as to the efficiency of that Fleet.

Confidence in the Fleet.

No grounds for pessimism.

No longer, as the world now understands, does the British Fleet exist merely to protect British shores, or even British commerce. The world has begun to recognise that it is on the basis of the British Fleet that the whole of the Alliance depends and all military successes are founded; and the very fact that that prodigious responsibility rests upon the Navy, and in the main upon the British Navy, cannot but increase the natural anxiety which anybody connected with that Service would be inclined to feel. But when I reflect that in August, 1914, we rightly felt, in the words of my right hon. friend (Col. Churchill), "We can count upon a Fleet of sufficient superiority for all our needs, with a good margin of safety in vital matters"; when I reflect that that was true in 1914, as it certainly was; when I reflect that in every department of naval strength the growth since then under my right hon. friend, and under the Board which succeeded him, has been absolutely prodigious; when I reflect that its increase has been great in the essentials of material strength, and also that every evidence we can get from such actions as have already

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taken place shows that the men of the Fleet, from the highest to the lowest, are competent to carry out their duties—when I reflect upon all these things it seems to me that the sub-acid pessimism has but little justification. I can understand a man being anxious about the Fleet; so much depends upon it. War at its best is so uncertain a game. But that any man could be confident in August, September, October, and November of 1914, and anxious at the beginning of 1915, is what I cannot understand. Surely he must be of somewhat poor spirit who, after he has surveyed the opposing forces, after he has measured the greatness of the Fleet which Great Britain has at its disposal, and the character of its enemies—surely he must be, I say, of somewhat poor spirit who cannot face the future in a spirit of cheerful serenity.

Colonel Churchill's intervention.

[*At the close of the First Lord's speech, Colonel Churchill, late First Lord, addressed the House. After paying a high tribute to the officers of the Grand Fleet, he made some criticisms of policy. His points may be summarised as follows: There was a doubt as to the punctual completion of naval programmes; we did not know what Germany had been doing; had our fourteen battleships armed with* 15-*in. guns been completed?; we were entering upon the period of the uncertain and incalculable in the war; we could not afford to rest on our oars; were our destroyers sufficient?; there could be no "limit of labour" where the Navy was concerned; the late Board would not have been content with the passivity (in distant aggressive action) of the Naval Air Service in* 1915*; the times were cruel and the issues momentous; personal considerations must not stand in the way; there was lack of "driving force and mental energy" at the Admiralty; Lord Fisher must be recalled "to his post as First Sea Lord."*]

On the resumption of the debate the First Lord replied to his predecessor's strictures. The following extracts constitute a summary of what he said:

Defence of the Admiralty.

. . . The speech of my right hon. and gallant friend practically was divided into two parts. In the first part he strove to arouse doubts, misgivings, and suspicions about the strength of the Fleet and the energy of the present Board of Admiralty in dealing with national interests, and in the second part of his speech he suggested a remedy which he thought would put an end to a condition of things which, if it existed, everybody would admit would be lamentable. I may say something perhaps on each branch of my right hon. friend's speech. I absolutely deny the charge. I reiterate what I said in the most explicit manner that there has been no breach of continuity

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between the last Board and the present Board; there has been no slackness in pressing on the construction of ships for naval purposes, and as a matter of fact that construction has gone on at a rate which, if not as rapid as we could desire, at all events can compare most favourably with anything that has ever yet been done by this or any other country in times of peace.

The Labour Difficulty.

Improvements in progress.

The real limitation to our building at the present moment is due to the difficulty of obtaining labour. We had not sat down contentedly under this difficulty, but were doing all that we could to alleviate it, if not to remedy it completely. There were three difficulties in the matter of labour—the difficulty that a certain number of highly skilled men had gone to the front; the difficulty arising from the bad time-keeping in certain yards and among certain sections of the shipbuilding population; and there was the third cause that we had not yet carried out to any adequate or sufficient extent the policy of dilution. Well, let me say that under all those three heads every effort is being made and has been made by the Admiralty to bring about a better state of things.

Capital Ships and Monitors.

Delays explained.

My right hon. friend gave, as a crucial instance of his energy and our slackness, the case of the monitors and the case of the capital ships. I think that is an illustration which from almost every point of view is singularly infelicitous for the right hon. gentleman who used it. The main cause why these Dreadnought ships have not been completed as soon as had been hoped and expected is that the right hon. gentleman and his Board, in order to make the monitors, used the guns and the gun-mountings which had been designed for the capital ships.

The Grand Fleet.

Guns for the monitors.

But that is not all. What are the monitors? They are a kind of vessel of war which for certain purposes have proved, and may again prove, themselves of the greatest value. So far I am quite ready to go, but neither these monitors nor all the monitors in the world add a tittle to the strength of your Grand Fleet. They cannot work with the Grand Fleet, they are not intended to work with the Grand Fleet, and to take guns and gun-mountings from a capital ship and put them into a monitor may be right, or may be wrong, but it deliberately weakens your Grand Fleet in order to obtain another kind of naval instrument to be used more usefully perhaps in what

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may be called amphibious warfare than in a straightforward fight for the command of the ocean. I think the whole House is unanimous in thinking that the Grand Fleet must be strong enough in capital ships for all that is required of it in fighting the enemy. There is no difference of opinion on that point at all, and I am not in the least pessimistic about the strength of the Grand Fleet to carry out that policy. I recognize that the Grand Fleet is now more powerful than it was when my right hon. friend left office. As the months go on it will be more powerful still.

Full Confidence.

New strength of the Fleet.

If the fleets at the command of this country at this moment are not sufficient to secure national safety, then in the whole history of this country they never have been sufficient to secure national safety. They are much stronger than they were six months ago. They are still stronger than they were twelve months ago, and their excess over what we possessed nineteen months ago is still greater. As I said yesterday, in every class of ship, big and little ships designed to meet on equal or superior terms the German High Seas Fleet, auxiliary ships, patrol ships, anti-submarine ships, light cruisers, destroyers, flotilla leaders, submarines, every kind of ship available in modern war, we have increased, and largely increased, since the war began.

[*Mr. Balfour then dealt with Col. Churchill's proposal for the return of Lord Fisher, to whom he paid a high tribute, and spoke of the singularity of the suggestion.*]

My right hon. friend comes forward with this suggestion. He puts it in the form of a suggestion that Lord Fisher should come to the Admiralty. There is another form in which it could be put, which is equally veracious—that is, that Sir Henry Jackson should go from the Admiralty. Now, Sir Henry Jackson is an Admiral who no doubt is less known to the general public than Lord Fisher. He has not been, like Lord Fisher, in the public eye for many years. His name is not familiar to newspaper readers. He has not been associated with great and dramatic changes in naval policy; but I think if you ask competent judges in the Navy they will all say that a more admirable officer than Sir Henry Jackson, and one better fitted to fill the place which he now occupies, could not be found. By character, experience, abilities, and position, he is the man who commends himself to naval opinion in this country. His experience has been great. He has been head of the War College, he has been Chief of the Staff, he has been Controller, he was designated as

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Admiral of the Mediterranean Fleet at the moment war broke out. He is known to every officer throughout the Fleet, and wherever he is known he is respected and admired.

I think, when the right hon. gentleman comes down to this House and suggests to the Government that this great public servant should be turned adrift in order to introduce in his place a man of whom I would never say anything which does not indicate my enormous admiration for the great services he has rendered to the country in connexion with the creation of our Fleet, he seems to me to make the most amazing proposition that has ever been laid before the House of Commons.

II.

SUMMARY OF DIPLOMATIC CORRESPONDENCE—GREAT BRITAIN AND UNITED STATES.

In the Naval Annual *of last year (p.* 243) *the British Order in Council of March* 11, 1915, *was printed, wherein retaliatory measures were declared against the German Government, the purpose being to prevent commodities of all kinds from reaching or leaving Germany. Arising from this declaration a long correspondence ensued between the British and United States Governments. In particular, in a communication addressed to the United States Ambassador on March* 15*th, assurances were given that the British Government would make it their first aim to minimize the inconvenience which must inevitably be caused to neutral commerce from the existence of a state of war at sea, and in particular from the measures taken by the Allied Governments for the restriction of the enemies' oversea trade. Further, in view of the representation and complaints made by the United States Ambassador from time to time as to the particular hardships alleged to have been wrongly inflicted on American trade and shipping, His Majesty's Government, on June* 24*th, offered some observations respecting the manner in which they had endeavoured to give effect to those assurances.*

The British Government had declared their intention to refrain altogether from the exercise of the right to confiscate ships or cargoes which belligerents had always previously claimed in respect of breaches of blockade; and under article 5 *(i) of the enactment of March* 11*th, it was provided that any person claiming to be interested in goods placed in the Prize Court in pursuance of that enactment, might forthwith issue a writ against the proper officer of the Crown, and thus remove all possible cause of grievance on account of delay. A specific assurance was given to the United States Government that the instructions to be issued to the Fleet, and to the Customs officials and executive officials,*

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would impress upon them the duty of acting with the utmost despatch consistent with the object in view, and of showing in every case such consideration for neutrals as might be compatible with that object, namely, to prevent vessels carrying goods for, or coming from, the enemy's territory.

The Memorandum concluded by explaining the procedure adopted with regard to cotton shipments, detained cargoes and goods of German origin; pointed out the fact that the increase of neutral shipping indicated that large quantities of enemy goods were still passing out through neutral countries, and offered some further concessions with regard to the treatment of American goods.

III.

THE AMERICAN NOTE, NOV. 5, 1915.

Contentions of the United States Government.

On November 5th the United States Ambassador presented to Sir Edward Grey a long Note, setting forth, under 35 headings, observations in criticism of British action. The points brought forward were mainly in regard (1) to detention of vessels chiefly through bringing them into port for purposes of search; (2) to our procedure in reference to evidence of contraband; (3) to the increased shipment to neutrals, to which reference had been made, and in which Great Britain was stated to share; (4) to our blockade measures, it being alleged that we had been unable to distinguish between enemy and neutral trade; (5) to the general law of blockade; (6) to the blockade of neutral ports, which it was asserted we had endeavoured to set up; (7) to the working of our prize courts; (8) the damage inflicted on the rights of America to enjoy international trade; and (9) our alleged illegal exercise of force in seizing jurisdiction where it did not rightly exist. The conclusions of the Ambassador's Note were summarised as follows:—

I believe it has been conclusively shown that the methods sought to be employed by Great Britain to obtain and use evidence of enemy destination of cargoes bound for neutral ports and to impose a contraband character upon such cargoes are without justification; that the blockade, upon which such methods are partly founded, is ineffective, illegal, and indefensible; that the judicial procedure offered as a means of reparation for an international injury is inherently defective for the purpose; and that in many cases jurisdiction is asserted in violation of the law of nations. The United States, therefore, cannot submit to the curtailment of its neutral rights by these measures, which are admittedly retaliatory, and therefore illegal, in conception and in nature, and intended to punish

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the enemies of Great Britain for alleged illegalities on their part. The United States might not be in a position to object to them if its interests and the interests of all neutrals were unaffected by them, but, being affected, it cannot with complacence suffer further subordination of its rights and interests to the plea that the exceptional geographic position of the enemies of Great Britain require or justify oppressive and illegal practices.

Plea of neutral rights.

The Government of the United States desires, therefore, to impress most earnestly upon His Majesty's Government that it must insist that the relations between it and His Majesty's Government be governed, not by a policy of expediency, but by those established rules of international conduct upon which Great Britain in the past has held the United States to account when the latter nation was a belligerent engaged in a struggle for national existence. It is of the highest importance to neutrals, not only of the present day, but of the future, that the principles of international right be maintained unimpaired.

The task of championing the integrity of neutral rights, which have received the sanction of the civilised world, against the lawless conduct of belligerents arising out of the bitterness of the great conflict which is now wasting the countries of Europe, the United States unhesitatingly assumes, and to the accomplishment of that task it will devote its energies, exercising always that impartiality which from the outbreak of the war it has sought to exercise in its relations with the warring nations.

IV.

BRITISH BLOCKADE POLICY.

The following statement of the measures adopted to intercept the sea-borne commerce of Germany was issued as a White Paper on January 5, 1916.

1. The object of this Memorandum is to give an account of the manner in which the sea-power of the British Empire has been used during the present war for the purpose of intercepting Germany's imports and exports.

I.—Belligerent Rights at Sea.

2. The means by which a belligerent who possesses a fleet has, up to the time of the present war, interfered with the commerce of his enemy are three in number:—

(i.) The capture of contraband of war in neutral ships.

(ii.) The capture of enemy property at sea.

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(iii.) A blockade by which all access to the coast of the enemy is cut off.

3. The second of these powers has been cut down since the Napoleonic wars by the Declaration of Paris of 1856, under which enemy goods in a neutral ship, with the exception of contraband of war, were exempted from capture. Enemy goods which had been loaded in British or Allied ships before the present war were seized in large quantities immediately after its outbreak; but for obvious reasons such shipments ceased, for all practical purposes, after August 4, 1914, and this particular method of injuring the enemy may therefore, for the moment, be disregarded.

No blockade of Germany was declared until March, 1915, and therefore up to that date we had to rely exclusively on the right to capture contraband.

II.—Contraband.

Absolute and conditional contraband.

4. By the established classification goods are divided into three classes:—

(*a*) Goods primarily used for warlike purposes.

(*b*) Goods which may be equally used for either warlike or peaceful purposes.

(*c*) Goods which are exclusively used for peaceful purposes.

5. Under the law of contraband, goods in the first class may be seized if they can be proved to be going to the enemy country; goods in the second class may be seized if they can be proved to be going to the enemy Government or to its armed forces; goods in the third class must be allowed to pass free. As to the articles which fall within any particular one of these classes, there has been no general agreement in the past, and the attempts of belligerents to enlarge the first class at the expense of the second, and the second at the expense of the third, have led to considerable friction with neutrals.

6. Under the rules of prize law, as laid down and administered by Lord Stowell, goods were not regarded as destined for an enemy country unless they were to be discharged in a port in that country; but the American Prize Courts in the Civil War found themselves compelled by the then existing conditions of commerce to apply and develop the doctrine of continuous voyage, under which goods that could be proved to be ultimately intended for an enemy country were not exempted from seizure on the ground that they were first to be discharged in an intervening neutral port. This doctrine, although hotly contested by many publicists, had never been challenged by the British Government, and was more or less recognised as having become part of International Law.

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Declaration of London rules adopted as modified.

7. When the present war broke out it was thought convenient, in order, among other things, to secure uniformity of procedure among all the Allied forces, to declare the principles of International Law which the Allied Governments regarded as applicable to contraband and other matters. Accordingly, by the Orders in Council of August 20 and October 22, 1914, and the corresponding French Decrees, the rules set forth in the Declaration of London were adopted by the French and British Governments with certain modifications. As to contraband, the lists of contraband and free goods in the Declaration were rejected, and the doctrine of continuous voyage was applied not only to absolute contraband, as the Declaration already provided, but also to conditional contraband, if such goods were consigned to order, or if the papers did not show the consignee of the goods, or if they showed a consignee in enemy territory.

8. The situation as regards German trade was as follows: Direct trade to German ports—save across the Baltic—had almost entirely ceased, and practically no ships were met with bound to German ports. The supplies that Germany desired to import from overseas were directed to neutral ports in Scandinavia, Holland, or—at first—Italy, and every effort was made to disguise their real destination. The power which we had to deal with this situation in the circumstances then existing was:—

(i.) We had the right to seize articles of absolute contraband if it could be proved that they were destined for the enemy country, although they were to be discharged in a neutral port.

(ii.) We had the right to seize articles of conditional contraband if it could be proved that they were destined for the enemy Government or its armed forces, in the cases specified above, although they were to be discharged in a neutral port.

9. On the other hand, there was no power to seize articles of conditional contraband if they could not be shown to be destined for the enemy Government or its armed forces, or non-contraband articles, even if they were on their way to a port in Germany, and there was no power to stop German exports.

Blockade adapted to modern conditions of war and commerce.

10. That was the situation until the actions of the German Government led to the adoption of more extended powers of intercepting German commerce in March, 1915. The Allied Governments then decided to stop all goods which could be proved to be going to, or coming from, Germany. The state of things produced is in effect a blockade, adapted to the conditions of modern war and commerce, the only difference in operation being that the goods seized are not

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necessarily confiscated. In these circumstances it will be convenient, in considering the treatment of German imports and exports, to omit any further reference to the nature of the commodities in question, as, once their destination or origin is established, the power to stop them is complete. Our contraband rights, however, remain unaffected, though they, too, depend on the ability to prove enemy destination.

III.—German Exports.

Enemy trade stopped.

11. In carrying out our blockade policy great importance was from the outset attached to the stoppage of the enemy's export trade, because it is clear that to the extent that his exports can be stopped, and his power to establish credits for himself in neutral countries curtailed, his imports from such neutral countries will more or less automatically diminish. The identification of articles of enemy origin is, thanks to the system of certificates of origin which has been established, a comparatively simple matter; and the degree to which the policy of stopping German and Austrian oversea exports has been successful can best be judged by looking at the statistics of German and Austrian imports into America.

12. The normal imports into the United States of America from Germany and Austria, before the war, for the seven months March to September inclusive, are valued approximately and in round figures at $124,000,000 (£24,800,000). From March to September inclusive, this year's imports into the United States of America from those countries were valued at approximately $22,000,000 (£4,400,000). This sum includes the goods which were already in neutral ports in the way of shipment, or in transit, when the further measures adopted by the Allied Governments were announced in March, and also a considerable proportion of those which have been allowed to pass in the circumstances mentioned in paragraph 14. A certain amount is also to be accounted for by goods received from Germany and Austria by parcel post, which it was not originally possible to stop effectively. Steps have now been taken to close this channel to enemy exports. The latest returns available—those for September—show that over 92 per cent. of the German exports to the United States of America have been stopped.

13. The above figures allow of but one conclusion—the oversea exports of Germany and Austria are very near extinction. It is of special interest to note that in the main these exports have not been merely diverted to the neutral countries adjacent to Germany. The imports which those countries have received from Germany have not, in fact, exceeded the normal quantities of previous years.

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14. The object of the policy being to injure the enemy, the Allied Governments have in certain cases permitted the export of goods which had been ordered before March 1st, and had been either paid for prior to that date or ordered before that date on terms which rendered the neutral purchaser liable to pay whether the goods reached him or not. It is clear that in these cases no harm would be done to the enemy or pressure put upon him by not allowing the goods to pass. On the contrary, he would, if that were done, both receive his price and retain the goods and their possible use. The total value of the goods with which the Allied Governments have undertaken not to interfere in such cases up to the end of 1915 is approximately £3,000,000. If the goods allowed to pass under this arrangement were deducted from the total enemy exports to the United States of America, it would be seen that the amount of German exports which serve to increase the resources of the enemy is almost negligible.

IV.—German Imports.

Enemy and neutral destination of goods.

15. As regards German imports, however, the problem is much more complicated. Its central difficulty is that of distinguishing between goods with an enemy destination from those with a genuine neutral destination. A belligerent who makes use of his naval power to intercept the commerce of his enemy has to justify his action in each particular case before a Prize Court, which is bound by international law and not by the ordinary law of the country in which it sits. It is not sufficient for him to stop a neutral vessel and remove from her such articles as he may believe to be intended for his enemy; it is necessary subsequently to demonstrate in a court of law that the destination of the goods was such as to justify the belligerent in seizing them. If this is not proved, the goods will be released, and damages may be awarded against the captor. It must also be remembered that, in order to justify the seizure of a particular consignment, it is necessary to satisfy the Prize Court of the enemy destination of that consignment, and evidence of a general nature, if unaccompanied by proofs directly bearing on a particular case, is not enough. All this applies as much to goods seized as contraband as it does to those seized for breach of blockade.

16. In earlier wars the production of the necessary proof was a comparatively simple matter. Owing to the difficulties of inland transport before the introduction of railways, goods for the enemy country were usually carried to ports in that country and the ship's papers showed their destination. When, therefore, the ship had been captured, the papers found on board were generally sufficient to

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dispose of the case. In the old cases of contraband, the question at issue was usually not where the goods were in fact going to, but whether their nature was such as to make them liable to condemnation in view of the destination shown on the ship's papers. Even in the American Civil War the difficulty of proving destination was usually not serious, because the neutral harbours through which the supply of goods for the Confederate States was carried on were in normal time ports of comparatively small importance, and it could be shown that in normal times there was no local market for goods of such quantities and character.

German imports through neutral countries.

17. The case has been far different in the present war. The goods which Germany attempts to import are consigned to neutral ports, and it need hardly be said that the papers on board convey no suggestion as to their ultimate destination. The conditions of modern commerce offer almost infinite opportunities of concealing the real nature of a transaction, and every device which the ingenuity of the persons concerned, or their lawyers, could suggest has been employed to give to shipments intended for Germany the appearance of genuine transactions with a neutral country. The ports to which the goods are consigned, such as Rotterdam and Copenhagen, have in peace time an important trade, which increases the difficulty of distinguishing the articles ultimately intended to reach the enemy country from those which represent importation into the neutral country concerned for its own requirements. If action had to be taken solely on such information as might be gathered by the boarding officer on his visit to the ship, it would have been quite impossible to interfere to an appreciable extent with German imports, and the Allied Governments would therefore have been deprived of a recognised belligerent right.

18. In these circumstances, unless the Allied Governments were prepared to seize and place in the Prize Court the whole of the cargo of every ship which was on her way to a neutral country adjacent to Germany, and to face the consequences of such action, the only course open to them was to discover some test by which goods destined for the enemy could be distinguished from those which were intended for neutral consumption.

19. The first plan adopted for this purpose is to make use of every source of information available in order to discover the real destination of sea-borne goods, and to exercise to the full the right of stopping such goods as the information obtained showed to be suspect, while making a genuine and honest attempt to distinguish between *bona fide* neutral trade and trade which, although in appearance equally innocent, was in fact carried on with the enemy country.

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Contraband Committee.

20. For this purpose a considerable organisation has been established in the Contraband Committee, which sits at the Foreign Office, and works in close touch with the Admiralty, Board of Trade, and War Trade Department. Nearly every ship on her way to Scandinavian or Dutch ports comes or is sent into a British port for examination, and every item of her cargo is immediately considered in the light of all the information which has been collected from the various sources open to the Government, and which, after nearly a year and a half of war, is very considerable. Any items of cargo as to which it appears that there is a reasonable ground for suspecting an enemy destination are placed in the Prize Court, while articles as to the destination of which there appears to be doubt are detained pending further investigation.

21. If, however, this were all that could be done, there is little doubt that it would be impossible to effect a complete cutting off of the enemy's supplies. For instance, there are many cases in which it would be difficult to establish in the Prize Court our right to stop goods, although they or their products, perhaps after passing through several hands, would in all probability ultimately reach the enemy. To indicate more plainly the nature of these difficulties would obviously be to assist the enemy and the neutral traders who desire to supply him; but the difficulties exist, and in order to meet them it has been necessary to adopt other means by which neutral may be more easily distinguished from enemy trade, and the blockade of Germany made more effective than it would be if we relied solely on the right to stop goods which could be proved to be intended for the enemy.

V.—Guarantees by Importers.

Guarantee of merchant associations.

22. Importers in neutral countries adjacent to Germany have found that the exercise of our belligerent rights to some extent impedes the importation of articles which they genuinely need for the requirements of their own country, and consequently they have in many cases shown willingness to make agreements with this country which on the one hand secure their receiving the supplies which they need, while on the other guaranteeing to us that goods allowed to pass under the terms of the agreement will not reach the enemy. The neutral Governments themselves have as a rule considered it inadvisable to make agreements on such points with His Majesty's Government; they have on the whole confined their action to prohibiting the export of certain articles which it was necessary for them to import from abroad. Inasmuch, however, as in most cases they reserved the right to grant exemptions from such pro-

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hibitions, and as trade between the Scandinavian countries themselves was usually excluded from the scope of such measures, the mere fact of the existence of such prohibitions could not be considered a sufficient safeguard that commodities entering the country would not ultimately reach Germany.

23. In some neutral countries, however, agreements have been made by representative associations of merchants, the basis of which is that the associations guarantee that articles consigned to or guaranteed by them, and their products, will not reach the enemy in any form, while His Majesty's Government undertake not to interfere with shipments consigned to the association subject to their right to institute prize proceedings in exceptional cases where there is evidence that an attempt has been made to perpetrate a fraud upon the association, and to pass the goods ultimately through to Germany. The first of these agreements was made with the Netherlands Oversea Trust, and similar agreements, either general or dealing with particular commodities of special importance, such as rubber and cotton, have been made with bodies of merchants in Sweden, Norway, Denmark, and Switzerland. The details of these agreements it is impossible to give more fully, but the general principle is that the associations, before allowing goods to be consigned to them, require the would-be receivers to satisfy them, by undertakings backed by sufficient pecuniary penalties, that the goods will not leave the country, either in their original shape or after any process of manufacture, and notwithstanding any sales of which they may be the subject.

In some cases these agreements provide that the associations shall themselves be bound to detain or return goods believed by His Majesty's Government to be destined for the enemy; so that it does not follow that cargoes allowed to proceed to a neutral port will necessarily be delivered to the consignees.

24. The existence of such agreements is of great value in connection with the right of seizure, because the fact of articles not being consigned to or guaranteed by the association, or being consigned to it without the necessary consent, at once raises the presumption that they are destined for the enemy.

VI.—Agreements with Shipping Lines.

Guarantee of shipping lines.

25. Delays caused by the elaborate exercise of the belligerent right of visit and search are very irksome to shipping; and many shipping lines who carry on regular services with Scandinavia and Holland have found it well worth their while to make agreements with His Majesty's Government under which they engage to meet our requirements with regard to goods carried by them, in return for

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an undertaking that their ships will be delayed for as short a time as possible for examination in British ports. Several agreements of this kind have been made; the general principle of them is that His Majesty's Government obtain the right to require any goods carried by the line, if not discharged in the British port of examination, to be either returned to this country for Prize Court proceedings, or stored in the country of destination until the end of the war, or only handed to the consignees under stringent guarantees that they or their products will not reach the enemy. The companies obtain the necessary power to comply with these conditions by means of a special clause inserted in all their bills of lading, and the course selected by the British authorities is determined by the nature of the goods and the circumstances of the case. In addition to this, some of these companies make a practice, before accepting consignments of certain goods, of inquiring whether their carriage is likely to lead to difficulties, and of refusing to carry them in cases where it is intimated that such would be the case. The control which His Majesty's Government are in a position to exercise under these agreements over goods carried on the lines in question is of very great value.

VII.—Bunker Coal.

Control of neutrals through the issue or refusal of bunker coal.

26. Much use has been made recently of the power which the British Government are in a position to exercise owing to their ability to refuse bunker coal to neutral ships in ports in the British Empire. Bunker coal is now only supplied to neutral vessels whose owners are willing to comply with certain conditions which ensure that no vessels owned, chartered, or controlled by them trade with any port in an enemy country, or carry any cargo which proceeds from, or is destined for, an enemy country. The number of owners who accept these conditions increases almost daily. The use of this weapon has already induced several shipping lines which before the war maintained regular services between Scandinavian and German Baltic ports to abandon their services.

VIII.—Agreements in Respect of Particular Commodities.

27. Special agreements have been made in respect of particular articles the supply of which is mainly derived from the British Empire or over which the British Government are in a position to exercise control. The articles covered by such agreements, the object of which is to secure such control over the supply of these materials as will ensure that they or their products will not reach the enemy, are rubber, copper, wool, hides, oil, tin, plumbago, and certain other metals.

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IX.—Rationing.

System of average supplies to neutrals.

28. Though the safeguards already described do much to stop entirely all trade to and from Germany, yet, in spite of all of them, goods may and do reach our enemies, and, on the other hand, considerable inconvenience is caused to genuinely neutral trade. It is to avoid both evils that His Majesty's Government have for months past advocated what is called rationing, as by far the soundest system both for neutrals and belligerents. It is an arrangement by which the import of any given article into a neutral country is limited to the amount of its true domestic requirements. The best way of carrying this arrangement into effect is probably by agreement with some body representing either one particular trade or the whole commerce of the country. Without such an agreement there is always a risk that, in spite of all precautions, the whole rationed amount of imports may be secured by traders who are really German agents. These imports might go straight on to Germany, and there would then be great practical difficulty in dealing with the next imports destined, it may be, for genuine neutral traders. If they were to be stopped, there would be great complaint of injustice to neutrals, and yet unless that be done the system would break down. Accordingly, agreements of this kind have been concluded in various countries, and his Majesty's Government are not without hope that they may be considerably extended in the future. Even so, the security is not perfect. An importer may always let his own countrymen go short and re-export to Germany. The temptation to do so is great, and as our blockade forces prices up is increasing. But the amount that gets through in this way cannot be large, and the system is in its working so simple that it minimizes the delays and other inconveniences to neutral commerce inseparable from war. Of the details of these arrangements it is impossible to speak. But their principle appears to offer the most hopeful solution of the complicated problems arising from the necessity of exercising our blockade through neutral countries.

X.—Results.

29. As to the results of the policy described in this Memorandum, the full facts are not available. But some things are clear. It has already been shown that the export trade of Germany has been substantially destroyed. With regard to imports, it is believed that some of the most important, such as cotton, wool, and rubber, have for many months been excluded from Germany. Others, like fats and oils and dairy produce, can only be obtained there, if at all, at famine prices. All accounts, public and private, which reach his

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Majesty's Government agree in stating that there is considerable discontent amongst sections of the German population, and there appear to have been food riots in some of the larger towns. That our blockade prevents any commodities from reaching Germany is not, and under the geographical circumstances cannot be, true. But it is already successful to a degree which good judges both here and in Germany thought absolutely impossible, and its efficiency is growing day by day. It is right to add that these results have been obtained without any serious friction with any neutral Government. There are obvious objections to dwelling on the importance to us of the good will of neutral nations; but anyone who considers the geographical, military, and commercial situation of the various countries will certainly not underrate the value of this consideration. There is great danger when dealing with international questions in concentrating attention exclusively on one point in them, even if that point be as vital as is undoubtedly the blockade of Germany.

XI.—Conclusion.

30. To sum up, the policy which has been adopted in order to enforce the blockade of Germany may be described as follows:—

Summary of procedure under Order in Council of March 11, 1915.

(i.) German exports to oversea countries have been almost entirely stopped. Such exceptions as have been made are in cases where a refusal to allow the export of the goods would hurt the neutral concerned without inflicting any injury upon Germany.

(ii.) All shipments to neutral countries adjacent to Germany are carefully scrutinised with a view to the detection of a concealed enemy destination. Wherever there is reasonable ground for suspecting such destination, the goods are placed in a Prize Court. Doubtful consignments are detained until satisfactory guarantees are produced.

(iii.) Under agreements in force with bodies of representative merchants in several neutral countries adjacent to Germany stringent guarantees are extracted from importers, and so far as possible all trade between the neutral country and Germany, whether arising overseas or in the neutral country itself, is restricted.

(iv.) By agreements with shipping lines and by a vigorous use of the power to refuse bunker coal, a large proportion of the neutral mercantile marine which carries on trade with Scandinavia and Holland has been induced to agree to conditions designed to prevent goods carried in these ships from reaching the enemy.

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(v.) Every effort is being made to introduce a system of rationing which will ensure that the neutral countries concerned only import such quantities of the articles specified as are normally imported for their own consumption.*

V.

THE LUSITANIA—GERMAN ALLEGATIONS.

The report of the Court which inquired into the loss of the Lusitania with 1198 lives on May 8th was read on July 17, 1915, by Lord Mersey, who acted as Wreck Commissioner. The report stated that "the loss of the said ship and lives was due to damage caused to the said ship by torpedoes fired by a submarine of German nationality, whereby the ship sank. In the opinion of the Court the act was done, not merely with the intention of sinking the ship, but also with the intention of destroying the lives of the people on board."

In an annex Lord Mersey stated:—"The whole blame for the cruel destruction of life in this catastrophe must rest solely with those who plotted and with those who committed the crime."

German Note to the United States.

With reference to the Lusitania, and in reply to an American Note of June 10th enforcing the position adopted in a Note of May 15th, a German Note was addressed to the United States Government, dated July 8th, in which it was protested that Germany had always been "tenacious of the principle that war should be conducted against the armed and organised forces of the enemy country," and that "if in the present war the principles which should be the ideal of the future have been traversed more and more the longer its duration, the German Government has no guilt therein." In regard to the Lusitania, it was asserted that she carried explosives and munitions, and we were charged with having obliterated all distinctions between merchantmen and warships. "While our enemies thus loudly and openly have proclaimed war without mercy until our utter destruction, we are conducting a war in self-defence for our national existence and for the sake of peace of assured permanency. We have been obliged to adapt the submarine warfare to meet the declared intentions of our enemies and the methods of warfare adopted by them in contravention of international law." In this same statement it was alleged that American and German statesmen "had always stood together in the struggle for the freedom of the seas."

* *See* page 306 for the later Order in Council.

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VI.

AMERICAN NOTE TO THE GERMAN GOVERNMENT.

With reference to the above statement, the United States Government presented its third Note to the German Government, conveying a grave warning. The following is the text :—

The Note of the Imperial German Government, dated July 8, 1915, has received the careful consideration of the Government of the United States. It regrets that it is obliged to say that it has found it most unsatisfactory, because it fails to meet the real differences between the two Governments and indicates no way in which the accepted principles of the law of humanity may be applied in the grave matter in controversy, but proposes on the contrary arrangements for the partial suspension of those principles which virtually set them aside.

The Government of the United States notes with satisfaction that the Imperial German Government recognises without reservation the principles insisted upon in several communications which this Government addressed to the Imperial German Government in regard to its announcement of a war zone and the use of submarines against merchantmen on the high seas—principles that the high seas are free, that the character and cargo of a merchantman must first be ascertained before it can be lawfully seized or destroyed, and that the lives of non-combatants may in no case be put into jeopardy unless the vessel resists or seeks to escape after it has been summoned to submit to examination. For a belligerent act of retaliation is *per se* an act beyond the law, and defence of the act retaliatory is an admission that is illegal.

An irrelevant plea.

The Government of the United States is, however, keenly disappointed to find that the Imperial German Government regards itself to a large degree exempted from the obligation to observe these principles, even where neutral vessels are concerned, by what it believes the policy and practice of the Government of Great Britain to be in the present war in regard to neutral commerce.

The Imperial German Government will readily understand that the Government of the United States cannot discuss the policy of the Government of Great Britain in regard to neutral trade except with that Government itself, and must regard the conduct of other belligerent Governments as irrelevant to any discussion with the Imperial German Government of what this Government regards as grave and unjustifiable violations of the rights of American citizens by the German naval commanders. Illegal and inhuman acts,

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however justifiable they may be thought to be against an enemy who is believed to have acted in contravention of law and humanity, are manifestly indefensible when they deprive neutrals of their acknowledged rights, particularly when they violate the right to life itself.

If a belligerent cannot retaliate against an enemy without injuring the lives of neutrals as well as their property, humanity as well as justice and due regard for the dignity of neutral Powers should dictate that the practice be discontinued. If persisted in it would in such circumstances constitute an unpardonable offence against the sovereignty of the neutral nation affected.

The new warfare.

The Government of the United States is not unmindful of the extraordinary conditions created by this war or the radical alterations in the circumstances and method of attack produced by the use of instrumentalities of naval warfare which the nations of the world cannot have had in view when the existing rules of international law were formulated. It is ready to make every reasonable allowance for these novel and unexpected aspects of war at sea, but it cannot consent to abate any essential or fundamental rights of its people, because of a mere alteration in circumstances. The rights of neutrals in time of war are based on principle, not upon expediency, and principles are immutable. It is the duty and obligation of belligerents to find a way to adapt the new circumstances thereto. The events of the past two months have clearly indicated that it is possible and practicable to conduct such submarine operations as have characterised the activity of the Imperial German Navy within the so-called war zone in substantial accord with the accepted practices of regulated warfare. The whole world has looked with interest and increasing satisfaction at the demonstration of that possibility by German naval commanders. It is manifestly possible, therefore, to lift the whole practice of submarine attack above the criticism which it has aroused and to remove the chief causes of offence.

The Lusitania outrage.

In view of the admission of illegality made by the Imperial Government when it pleaded the right of retaliation in defence of its acts, and in view of the manifest possibility of conforming to the established rules of naval warfare, the Government of the United States cannot believe that the Imperial Government will longer refrain from disavowing the wanton act of its naval commander in sinking the Lusitania or offering reparation for the American lives lost, so far as reparation can be made for the needless destruction of human life by that illegal act.

The Government of the United States, while not indifferent to the friendly spirit in which it is made, cannot accept the suggestion of the Imperial German Government that certain vessels be

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designated by agreement which should be free on the seas now illegally proscribed. The very agreement would by implication subject other vessels to illegal attack and be a curtailment, and therefore an abandonment, of the principles for which this Government contends, and which in times of calmer counsels every nation would concede as of course.

Freedom of the seas.

The Government of the United States and the Imperial German Government, contending for the same great object, long stood together in urging the very principles on which the Government of the United States now so solemnly insists. They are both contending for the freedom of the seas. The Government of the United States will continue to contend for that freedom from whatever quarter it is violated, without compromise and at any cost. It invites the practical co-operation of the Imperial German Government at this time, when co-operation may accomplish most, and this great common object can be most strikingly and effectively achieved. The Imperial German Government expresses the hope that this object may in some measure be accomplished even before the present war ends. It can be.

The Government of the United States not only feels obliged to insist upon it, by whomsoever it is violated or ignored, in the protection of its own citizens, but it is also deeply interested in seeing it made practicable between the belligerents themselves. It holds itself ready at any time to act as a common friend who may be privileged to suggest a way.

A solemn warning.

In the meantime the very value which this Government sets upon the long unbroken friendship between the people and Government of the United States and the people and Government of the German nation impels it to press most solemnly upon the Imperial German Government the necessity for the scrupulous observance of neutral rights. This is a critical matter. Friendship itself prompts it to say to the Imperial Government that repetition by the commanders of German naval vessels of acts in contravention of those rights must be regarded by the Government of the United States when they affect American citizens as deliberately unfriendly.

VII.

ENEMY SUBMARINES IN THE MEDITERRANEAN.

The sinking of the Ancona by an Austrian submarine led to an interchange of Notes between the United States and Austro-Hungarian Governments, in which the latter was held responsible for the act of its naval commander, and the definite demands made by the American Government were renewed.

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With reference to this matter the German Ambassador, on January 7th, left at the United States Department of State, under instructions from his Government, the following communication:—

German professions and contentions.

1. German submarines in the Mediterranean had, from the beginning, orders to conduct cruiser warfare against enemy merchant vessels only in accordance with general principles of international law, and in particular measures of reprisal, as applied in the war zone around the British Isles, were to be excluded.

2. German submarines are therefore permitted to destroy enemy merchant vessels in the Mediterranean—*i.e.*, passenger as well as freight ships as far as they do not try to escape or offer resistance, only after passengers and crews have been accorded safety.

3. All cases of destruction of enemy merchant ships in the Mediterranean in which German submarines are concerned are made the subject of official investigation and, besides, subject to regular Prize Court proceedings. In so far as American interests are concerned, the German Government will communicate the result to the American Government. Thus, also, in the Persia case, if the circumstances should call for it.

4. If commanders of German submarines should not have obeyed the orders given to them they will be punished; furthermore, the German Government will make reparation for damage caused by death of or injuries to American citizens.

VIII.

THE NEW GERMAN THREAT.

Merchantmen to be treated as belligerent vessels.

On February 10th the German Government handed to the diplomatic representatives of the neutral Powers in Berlin a Memorandum, and Count Bernstorff presented a special statement to Mr. Lansing, Secretary of State, at Washington, reiterating his charges against our alleged illegal action. The following were the principal points of the Memorandum:—(1) Before the war the British Government had equipped merchant vessels with guns; (2) after the outbreak of war German cruisers established the fact that British liners were armed, and they thus acquired a warlike character, whether the guns served for defence only or also for attack; (3) that since the war began this arming of merchantmen had become more general, and that such vessels had offered armed resistance and even attacked German war vessels; (4) The British Admiralty had issued secret orders regulating the control of gun-crews on board merchantmen; (5) it was proved that armed British merchantmen had official orders treacherously to attack German submarines. A

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list was appended of sixteen cases in which it was alleged merchant vessels had opened fire on German submarines. In fifteen cases the defence was successful, and merchantmen have undoubtedly the right to defend themselves, accepting the risk of the procedure.

The operative part of the Memorandum was as follows:—

In view of the aforesaid circumstances enemy merchantmen carrying guns are not entitled to be regarded as peaceful merchantmen. The German naval forces, therefore, after a short interval in the interests of neutrals, will receive an order to treat such vessels as belligerents. The German Government notifies neutral Powers of this state of affairs in order that they may be able to warn their subjects before entrusting their persons or properties to armed merchantmen of Powers at war with the German Empire.

Immediately afterwards Germany and Austria-Hungary gave notice to the neutral Powers of their intention to treat armed merchantmen as warships as from March 1st. This date had been fixed in order to give the Allies time to signify their intention respecting Mr. Lansing's Note of January 23rd, which had proposed the disarming of merchantmen. A few days later Count Bernstorff presented another Note to Mr. Lansing protesting against our blockade and arming of merchant vessels.

IX.

ADMIRALTY STATEMENT.

Replying to the charges made in the above Memorandum on the arming of merchant ships, the Admiralty issued the instructions which were actually given to the British merchantman carrying guns by the Trade Division of the Admiralty War Staff on October 20, 1915.

A.—The Status of Armed Merchant Ships.

1. The right of the crew of a merchant vessel forcibly to resist visit and search, and to fight in self-defence, is well recognised in international law, and is expressly admitted by the German prize regulations in an addendum issued in June, 1914, at a time when it was known that numerous merchant vessels were being armed in self-defence.
2. The armament is supplied solely for the purpose of resisting attack by an armed vessel of the enemy. It must not be used for any other purpose whatsoever.
3. An armed merchant vessel, therefore, must not in any circumstances interfere with or obstruct the free passage of other merchant vessels or fishing craft whether these are friendly, neutral, or hostile.
4. The status of a British armed merchant vessel cannot be changed upon the high seas.

B.—Rules to be Observed in the Exercise of the Right of Self-Defence.

1. The Master or Officer in command is responsible for opening and ceasing fire.
2. Participation in armed resistance must be confined to persons acting under the orders of the Master or Officer in command.
3. Before opening fire the British colours must be hoisted.
4. Fire must not be opened or continued from a vessel which has stopped, hauled down her flag, or otherwise indicated her intention to surrender.
5. The expression "armament" in these instructions includes not only cannon but also rifles and machine guns in cases where those are supplied.
6. The ammunition used in rifles and machine guns must conform to Article 23,

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Hague Convention IV., 1907; that is to say, the bullets must be cased in nickel or other hard substance, and must not be split or cut in such a way as to cause them to expand or set upon striking a man. The use of explosive bullets is forbidden.

C.—Circumstances under which the Armament should be Employed.

1. The armament is supplied for the purpose of defence only, and the object of the Master should be to avoid action whenever possible.

2. Experience has shown that hostile submarines and aircraft have frequently attacked merchant vessels without warning. It is important, therefore, that craft of this description should not be allowed to approach to a short range at which a torpedo or bomb launched without notice would almost certainly take effect.

British and Allied submarines and aircraft have orders not to approach merchant vessels. Consequently, it may be presumed that any submarine or aircraft which deliberately approaches or pursues a merchant vessel does so with hostile intention. In such cases fire may be opened in self-defence in order to prevent the hostile craft closing to a range at which resistance to a sudden attack with bomb or torpedo would be impossible.

3. An armed merchant vessel proceeding to render assistance to the crew of a vessel in distress must not seek action with any hostile craft, though, if she is herself attacked while so doing, fire may be opened in self-defence.

4. It should be remembered that the flag is no guide to nationality. German submarines and armed merchant vessels have frequently employed British, Allied, or neutral colours in order to approach undetected. Though, however, the use of disguise and false colours in order to escape capture is a legitimate *ruse de guerre*, its adoption by defensively-armed merchant ships may easily lead to misconception. Such vessels, therefore, are forbidden to adopt any form of disguise which may cause them to be mistaken for neutral ships.

X.

Unarmed Vessels Torpedoed.

In reference to the above Memorandum, the Admiralty issued the following list of unarmed British vessels torpedoed and sunk during 1915 by enemy submarines without warning:—

January 30	Tokomaru.	April 18	Vanilla.
February 15	Dulwich.	May 1	Edale.
February 20	Cambank.	May 3	Minterne.
February 23	Branksome Chine.	May 6	Centurion.
February 23	Oakby.	May 7	Lusitania.
February 24	Western Coast.	May 18	Drumchree.
February 24	Rio Parana.	May 19	Dumfries.
February 24	Harpalion.	June 1	Saidieh.
March 7	Bengrove.	June 4	Inkum.
March 9	Blackwood.	June 8	Strathcarron.
March 9	Princess Victoria.	June 12	Leuctra.
March 11	Florazan.	June 15	Strathnairn.
March 13	Invergyle.	June 28	Dumfriesshire.
March 18	Glenartney.	July 28	Mangara.
March 21	Cairntorr.	August 1	Fulgens.
March 22	Concord.	August 10	Rosalie.
April 1	Seven Seas.	August 16	Serbino.
April 4	City of Bremen.	August 19	Arabic.
April 10	Harpalyce.	September 12	Ashmore.
April 15	Ptarmigan.	November 19	Hallamshire.

The following is a list (to December 31, 1915) of neutral vessels torpedoed by enemy submarines without warning:—

February 19	Belridge	Norwegian.
March 13	Hannah	Swedish.
April 3	Douro	Portuguese.
April 14	Folke	Swedish.

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April 15	Katwijk	Dutch.
April 17	Ellispontos	Greek.
May 2	Gulflight	American.
May 7	Ellen	Swedish.
May 25	Nebraskan	American.
May 26	Betty	Danish.
June 9	Svein Jarl	Norwegian.
July 14	Rym	Norwegian.
August 18	Magda	Norwegian.
August 27	Uranus	Swedish.

In addition to the above, there were several cases in which there was no reasonable doubt that the vessel was sunk by torpedo fired without warning from a submarine, but in the absence of actual proof, due to the lack of survivors or from other causes, these cases were omitted from this list.

[*In view of the above cases of hostile action against mercantile vessels the Allied Powers replied severally to the suggestion of Mr. Lansing, United States Secretary of State, that merchant ships should be disarmed, declining to comply with the suggestion.*]

XI.

OFFICIAL DESPATCHES AND REPORTS ON THE OPERATIONS.

DARDANELLES.

The following was the despatch received from Vice-Admiral John M. de Robeck on the landing of the Expeditionary Force in Gallipoli, dated July 1st, and published in the *London Gazette*, August 16, 1915:—

Triad, July 1, 1915.

SIR,—I have the honour to forward herewith an account of the operations carried out on April 25 and 26, 1915, during which period the Mediterranean Expeditionary Force was landed and firmly established in the Gallipoli Peninsula.

The landing commenced at 4.20 a.m. on the 25th. The general scheme was as follows:—Two main landings were to take place, the first at a point just north of Gaba Tepe, the second on the southern end of the peninsula. In addition a landing was to be made at Kum Kale, and a demonstration in force to be carried out in the Gulf of Xeros near Bulair. The night of the 24th-25th was calm and clear, with a brilliant moon, which set at 3 a.m.

The first landing, north of Gaba Tepe, was carried out under the orders of Rear-Admiral C. F. Thursby, C.M.G. His squadron consisted of the following ships:—

Battleships.	Cruiser.	Destroyers.	Seaplane Carrier.	Trawlers.	Balloon Ship.
Queen London Prince of Wales Triumph Majestic	Bacchante	Beagle Bulldog Foxhound Scourge Colne Usk Chelmer Ribble	Ark Royal	15	Manica

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To Queen, London, and Prince of Wales was delegated the duty of actually landing the troops. To Triumph, Majestic, and Bacchante the duty of covering the landing by gunfire.

In this landing a surprise was attempted. The first troops to be landed were embarked in the battleships Queen, London, and Prince of Wales.

The squadron then approached the land at 2.58 a.m. at a speed of 5 knots. When within a short distance of the beach selected for landing the boats were sent ahead. At 4.20 a.m. the boats reached the beach and a landing was effected. The remainder of the infantry of the covering force were embarked at 10 p.m., 24th. The troops were landed in two trips, the operation occupying about half an hour, this in spite of the fact that the landing was vigorously opposed, the surprise being only partially effected.

The disembarkation of the main body was at once proceeded with. The operations were somewhat delayed owing to the transports having to remain a considerable distance from the shore in order to avoid the howitzer and field guns' fire brought to bear on them and also the fire from the warships stationed in the Narrows, Chanak.

The beach here was very narrow and continuously under shell fire. The difficulties of disembarkation were accentuated by the necessity of evacuating the wounded; both operations proceeded simultaneously. The service was one which called for great determination and coolness under fire, and the success achieved indicates the spirit animating all concerned. In this respect I would specially mention the extraordinary gallantry and dash shown by the 3rd Australian Infantry Brigade (Colonel E. G. Sinclair Maclagan, D.S.O.), who formed the covering force. Many individual acts of devotion to duty were performed by the *personnel* of the Navy; these are dealt with below. Here I should like to place on record the good service performed by the vessels employed in landing the second part of the covering force; the seamanship displayed and the rapidity with which so large a force was thrown on the beach are deserving of the highest praise.

On the 26th the landing of troops, guns, and stores continued throughout the day; this was a most trying service, as the enemy kept up an incessant shrapnel fire, and it was extremely difficult to locate the well-concealed guns of the enemy. Occasional bursts of fire from the ships in the Narrows delayed operations somewhat, but these bursts of fire did not last long, and the fire from our ships always drove the enemy's ships away.

The enemy heavily counter-attacked, and, though supported by a very heavy shrapnel fire he could make no impression on our line, which was every minute becoming stronger. By nightfall on the April 26th our position north of Gaba Tepe was secure.

The landing at the southern end of the Gallipoli peninsula was carried out under the order of Rear-Admiral R. E. Wemyss, C.M.G., M.V.O., his squadron consisting of the following ships:—

Battleships.	Cruisers.	Fleet Sweepers.	Trawlers.
Swiftsure	Euryalus	6	14
Implacable	Talbot		
Cornwallis	Minerva		
Albion	Dublin		
Vengeance			
Lord Nelson			
Prince George			

Landings in this area were to be attempted at five different places; the conditions at each landing varied considerably. The position of beaches is given below.

Position of Beach.—"Y" beach, a point about 7000 yards north-east of Cape Tekeh. "X" beach, 1000 yards north-east of Cape Tekeh. "W" beach, Cape Tekeh—Cape Helles. "V" beach, Cape Helles—Seddul Bahr. Camber, Seddul Bahr. "S" beach, Eski-Hissarlik Point.

Taking these landings in the above order:—

Landing at "Y" Beach.—The troops to be first landed, the King's Own Scottish Borderers, embarked on the 24th in the Amethyst and Sapphire, and proceeded with the transports Southland and Braemar Castle to a position off Cape Tekeh. At 4 a.m. the boats proceeded to "Y" beach, timing their arrival there at 5 a.m., and pulled ashore covered by fire from H.M.S. Goliath. The landing was most successfully and expeditiously carried out, the troops gaining the top of the high

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cliffs overlooking this beach without being opposed; this result I consider due to the rapidity with which the disembarkation was carried out and the well-placed covering fire from ships.

The Scottish Borderers were landed in two trips, followed at once by the Plymouth Battalion Royal Marines. These troops met with severe opposition on the top of the cliffs, where fire from covering ships was of little assistance, and, after heavy fighting, was forced to re-embark on the 26th. The re-embarkation was carried out by the following ships:—Goliath, Talbot, Dublin, Sapphire, and Amethyst. It was most ably conducted by the beach *personnel* and covered by the fire of the warships, who prevented the enemy reaching the edge of the cliff, except for a few snipers.

Landing at "X" Beach.—The 2nd Battalion Royal Fusiliers (two companies and M.G. Section) embarked in the Implacable on the 24th, which ship proceeded to a position off the landing-place, where the disembarkation of the troops commenced at 4.30 a.m., and was completed at 5.15 a.m. A heavy fire was opened on the cliffs on both sides. The Implacable approached the beach, and the troops were ordered to land, fire being continued until the boats were close into the beach. The troops on board the Implacable were all landed by 7 a.m. without any casualties. The nature of the beach was very favourable for the covering fire from ships, but the manner in which this landing was carried out might well serve as a model.

Landing at "W" Beach.—The 1st Battalion Lancashire Fusiliers embarked in the Euryalus and Implacable on the 24th, who proceeded to positions off the landing-place, where the troops embarked in the boats at about 4 a.m. Shortly after 5 a.m. Euryalus approached "W" beach and Implacable "X" beach. At 5 a.m. the covering ships opened a heavy fire on the beach, which was continued up to the last moment before landing. Unfortunately, this fire did not have the effect on the extensive wire entanglements and trenches that had been hoped for, and the troops, on landing at 6 a.m., were met with a very heavy fire from rifles, machine-guns, and pom-poms, and found the obstructions on the beach undamaged. The formation of this beach lends itself admirably to the defence, the landing-place being commanded by sloping cliffs offering ideal positions for trenches, and giving a perfect field of fire. The only weakness in the enemy's position was on the flanks, where it was just possible to land on the rocks and thus enfilade the more important defences. This landing on the rocks was effected with great skill, and some Maxims, cleverly concealed in the cliffs, and which completely enfiladed the main beach, were rushed with the bayonet. This assisted to a great extent in the success of the landing, the troops, though losing very heavily, were not to be denied, and the beach and the approaches to it were soon in our possession.

The importance of this success cannot be overestimated; "W" and "V" beaches were the only two of any size in this area on which troops, other than infantry, could be disembarked, and failure to capture this one might have had serious consequences, as the landing at "V" was held up. The beach was being continuously sniped, and a fierce infantry battle was carried on round it throughout the entire day and the following night. It is impossible to exalt too highly the service rendered by the 1st Battalion Lancashire Fusiliers in the storming of the beach; the dash and gallantry displayed were superb. Not one whit behind in devotion to duty was the work of the beach *personnel*, who worked untiringly throughout the day and night, landing troops and stores under continual sniping. The losses due to rifle and machine-gun fire sustained by the boats' crews, to which they had not the satisfaction of being able to reply, bear testimony to the arduous nature of the service.

During the night of the 25th–26th enemy attacked continuously, and it was not till 1 p.m. on the 26th, when "V" beach was captured, that our position might be said to be secure. The work of landing troops, guns, and stores continued throughout this period, and the conduct of all concerned left nothing to be desired.

Landing at "V" Beach.—This beach, it was anticipated, would be the most difficult to capture; it possessed all the advantages for defence which "W" beach had, and in addition the flanks were strongly guarded by the old castle and village of Seddul Bahr on the east and perpendicular cliffs on the west. The whole foreshore was covered with barbed wire entanglements, which extended in places under the sea. The position formed a natural amphitheatre with the beach as stage.

The first landing here, as at all other places, was made in boats, but the experiment was tried of landing the remainder of the covering force by means of a collier, the River Clyde. This steamer had been specially prepared for the occasion under the directions of Commander Edward Unwin; large ports had been cut in her sides, and gangways built whereby the troops could reach the lighters which were to form a bridge on to the beach.

"V" beach was subjected to heavy bombardment similarly to "W" beach, with the same result—*i.e.*, when the first trip attempted to land they were met with a

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murderous fire from rifle, pom-pom, and machine-gun, which was not opened till the boats had cast off from the steamboats.

A landing on the flanks here was impossible, and practically all the first trip were either killed or wounded, a few managing to find some slight shelter under a bank on the beach. In several boats all were either killed or wounded; one boat entirely disappeared, and in another there were only two survivors. Immediately after the boats had reached the beach the River Clyde was run ashore under a heavy fire rather towards the eastern end of the beach, where she could form a convenient breakwater during future landing of stores, etc.

As the River Clyde grounded, the lighters which were to form the bridge to the shore were run out ahead of the collier, but unfortunately they failed to reach their proper stations and a gap was left between two lighters over which it was impossible for men to cross; some attempted to land by jumping from the lighter which was in position into the sea and wading ashore; this method proved too costly, the lighter being soon heaped with dead, and the disembarkation was ordered to cease.

The troops in the River Clyde were protected from rifle and machine-gun fire, and were in comparative safety.

Commander Unwin, seeing how things were going, left the River Clyde, and, standing up to his waist in water under a very heavy fire, got the lighters into position. He was assisted in this work by Midshipman G. L. Drewry, R.N.R., of H.M.S. Hussar; Midshipman W. St. A. Malleson, R.N., of H.M.S. Cornwallis; Able Seaman W. C. Williams, O.N. 186774 (R.F.R. B.3766), and Seaman R.N.R. George McKenzie Samson, O.N. 2408A, both of H.M.S. Hussar.

The bridge to the shore, though now passable, could not be used by the troops, anyone appearing on it being instantly shot down, and the men in the River Clyde remained in her till nightfall.

At 9.50 a.m. Albion sent in launch and pinnace manned by volunteer crews to assist in completing bridge, which did not quite reach the beach; these boats, however, could not be got into position until dark owing to heavy fire.

It had already been decided not to continue to disembark on "V" beach, and all other troops intended for this beach were diverted to "W." The position remained unchanged on "V" beach throughout the day, men-of-war and the Maxims mounted in River Clyde doing their utmost to keep down the fire directed on the men under partial shelter on the beach. During this period many heroic deeds were performed in rescuing wounded men in the water.

During the night of the 25th–26th the troops in River Clyde were able to disembark under cover of darkness, and obtain some shelter on the beach and in the village of Seddul Bahr, for possession of which now commenced a most stubborn fight.

The fight continued, supported ably by gun-fire from H.M.S. Albion, until 1.24 p.m., when our troops had gained a position from which they assaulted Hill 141, which dominated the situation. Albion then ceased fire, and the hill, with old fort on top, was most gallantly stormed by the troops, led by Lieut.-Col. C. H. H. Doughty-Wylie, General Staff, who fell as the position was won. The taking of this hill effectively cleared the enemy from the neighbourhood of the "V" beach, which could now be used for the disembarkation of the Allied armies. The capture of this beach called for a display of the utmost gallantry and perseverance from the officers and men of both services—that they successfully accomplished their task bordered on the miraculous.

Landing on the Camber, Seddul Bahr.—One half company Royal Dublin Fusiliers landed here, without opposition, the Camber being "dead ground." The advance from the Camber, however, was only possible on a narrow front, and after several attempts to enter the village of Seddul Bahr, this half company had to withdraw after suffering heavy losses.

Landing at De Totts, "S" Beach.—The 2nd South Wales Borderers (less one company) and a detachment 2nd London Field Company R.E. were landed in boats, convoyed by Cornwallis, and covered by that ship and Lord Nelson.

Little opposition was encountered, and the hill was soon in the possession of the South Wales Borderers. The enemy attacked this position on the evening of the 25th and during the 26th, but our troops were firmly established, and with the assistance of the covering ships all attacks were easily beaten off.

Landing at Kum Kale.—The landing here was undertaken by the French. It was most important to prevent the enemy occupying positions in this neighbourhood, whence he could bring gun-fire to bear on the transports off Cape Helles. It was also hoped that by holding this position it would be possible to deal effectively with the enemy's guns on the Asiatic shore immediately east of Kum Kale, which could fire into Seddul Bahr and De Totts.

The French, after a heavy preliminary bombardment, commenced to land at about 10 a.m., and by the afternoon the whole of their force had been landed at Kum

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Kale. When they attempted to advance to Yeni Shehr, their immediate objective, they were met by heavy fire from well-concealed trenches, and were held up just south of Kum Kale village.

During the night of the 25th-26th the enemy made several counter-attacks, all of which were easily driven off; during one of these 400 Turks were captured, their retreat being cut off by the fire from the battleships.

On the 26th, when it became apparent that no advance was possible without entailing severe losses and the landing of large reinforcements, the order was given for the French to withdraw and re-embark, which operation was carried out without serious opposition.

I now propose to make the following more general remarks on the conduct of the operations:—

From the very first the co-operation between Army and Navy was most happy; difficulties which arose were quickly surmounted, and nothing could have succeeded the tactfulness and forethought of Sir Ian Hamilton and his staff.

The loyal support which I received from Contre-Amiral E. P. A. Guepratte simplified the task of landing the Allied armies simultaneously.

The Russian Fleet was represented by H.I.R.M.S. Askold, which ship was attached to the French squadron. Contre-Amiral Guepratte bears testimony to the value of the support he received from Capt. Ivanoff, especially during the landing and re-embarkation of the French troops at Kum Kale.

The detailed organisation of the landing could not be commenced until the Army Headquarters returned from Egypt on the April 10th. The work to be done was very great, and the naval *personnel* and material available small.

Immediately on the arrival of the Army Staff at Mudros, committees, composed of officers of both services, commenced to work out the details of the landing operations; and it was due to these officers' indefatigable efforts that the expedition was ready to land on the April 22nd. The keenness displayed by the officers and men resulted in a good standard of efficiency, especially in the case of the Australian and New Zealand Corps, who appear to be natural boatmen.

Such actions as the storming of the Seddul Bahr position by the 29th Division must live in history for ever. Innumerable deeds of heroism and daring were performed; the gallantry and absolute contempt for death displayed alone made the operations possible.

At Gaba Tepe the landing and the dash of the Australian Brigade for the cliffs was magnificent—nothing could stop such men. The Australian and New Zealand Army Corps in this, their first battle, set a standard as high as that of any army in history, and one of which their countrymen have every reason to be proud.

In closing this despatch I beg to bring to their Lordships' notice the names of certain officers and men who have performed meritorious service. The great traditions of His Majesty's Navy were well maintained, and the list of names submitted of necessity lacks those of many officers and men who performed gallant deeds unobserved and therefore unnoted. This standard was high, and if I specially mention one particular action it is that of Commander Unwin and the two young officers and two seamen who assisted him in the work of establishing communications between River Clyde and the beach. Rear-Admirals R. E. Wemyss, C.M.G., M.V.O., C. F. Thursby, C.M.G., and Stuart Nicholson, M.V.O., have rendered invaluable service. Throughout they have been indefatigable in their efforts to further the success of the operations, and their loyal support has much lightened my duties and responsibilities.

I have at all times received the most loyal support from the Commanding Officers of His Majesty's ships during an operation which called for the display of great initiative and seamanship.

Capt. R. F. Phillimore, C.B., M.V.O., A.D.C., as principal Beach Master, and Capt. D. L. Dent, as principal Naval Transport Officer, performed most valuable service.

[Here followed special mentions of the heroic labours of Commander Edward Unwin, R.N.; Midshipman George L. Drewry, R.N.R.; Midshipman Wilfred St. A. Malleson, R.N.; Able Seaman William Chas. Williams; Seamen R.N.R. George McKenzie Samson: Lieut.-Commander Ralph B. Janvrin, R.N.; Lieut. John A. V. Morse, R.N.; Surgeon P. B. Kelly, R.N., attached to R.N.A.S.; Lieut.-Commander Adrian St. V. Keyes, R.N.; Commander William H. Cottrell, R.N.V.R., and many others.]

The work accomplished by the destroyer flotillas fully maintained the high standard they have established in these waters.

On the 25th and 26th Wolverine (Commander O. J. Prentis) (killed in action), Scorpion (Lieut.-Commander (now Commander) A. B. Cunningham), Renard (Lieut.-Commander L. G. B. A. Campbell), Grampus (Lieut.-Commander R. Bacchus), Pincher (Lieut.-Commander H. W. Wyld), and Rattlesnake (Lieut.-Commander P. G.

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Wodehouse), carried out mine-sweeping operations under Capt. Heneage inside the Dardanelles in a most satisfactory manner, being frequently under heavy fire. On the 26th the French sweepers Henriette (Lieut. de Vaisseau Auverny), Marius Chambon (Lieut. de Vaisseau Blanc), and Camargue (Lieut. de Vaisseau Bergeon) assisted them, Henriette doing particularly well.

Beagle (Commander (now Captain) H. R. Godfrey), Bulldog (Lieut.-Commander W. B. Mackenzie), Scourge (Lieut.-Commander H. de B. Tupper), Foxhound (Commander W. G. Howard), Colne (Commander C. Seymour), Chelmer (Lieut.-Commander (now Commander) H. T. England), Usk (Lieut.-Commander W. G. C. Maxwell), and Ribble (Lieut.-Commander R. W. Wilkinson) assisted in the disembarkation at Gaba Tepe.

Rear-Admiral Thursby reports as follows on the work accomplished by these boats:—

"The destroyers under Capt. C. P. R. Coode (Capt. 'D') landed the second part of the covering force with great gallantry and expedition, and it is, in my opinion, entirely due to the rapidity with which so large a force was thrown on the beach that we were able to establish ourselves there."

I entirely concur in Admiral Thursby's remarks on the good work performed by this division.

[Here followed special recommendations of petty officers and men.]

No officer could have been better served by his staff than I have been during these operations. The energy and resource of my Chief of Staff, Commodore R. J. B. Keyes, was invaluable, and in combination with Maj.-Gen. Braithwaite—Chief of the General Staff—he established a most excellent working agreement between the two services.

Capt. George P. W. Hope, of Queen Elizabeth, acted as my flag captain. His gift of organisation was of the greatest assistance in dealing with the mass of details inseparable from an operation of such magnitude.

Commander the Hon. A. R. M. Ramsay has used his sound practical knowledge of gunnery to great advantage in working out, in connection with the military, the details of gun-fire from the covering ships.

Capt. William W. Godfrey, R.M., a staff officer of great ability, has given me invaluable assistance throughout the operations.

I would also mention my secretary, Mr. Basil F. Hood, Acting Paymaster, and secretarial staff, whose good services under the direction and example of Mr. Edward W. Whittington-Ince, Assistant-Paymaster, will form the subject of a later separate report. Also Lieut.-Commander James F. Sommerville (Fleet Wireless Telegraph Officer), and Flag-Lieuts. L. S. Ormsby-Johnson, Hugh S. Bowlby, and Richard H. L. Bevan, who have performed good service in organising with the military the intercommunication between the Allied Fleets and Armies.

J. M. DE ROBECK, *Vice-Admiral.*

[For conspicuous bravery in the Dardanelles operations, Commander Edward Unwin, R.N., Lieut.-Commander (afterwards Commander) Eric Gascoigne Robinson, R.N., Midshipman W. St. Aubyn Malleson, R.N., Midshipman G. L. Drewry, R.N.R., Able Seaman C. W. Williams (who was afterwards killed), and Seaman R.N.V.R. G. McK. Samson, were awarded the Victoria Cross.* The despatch mentioned for bravery many officers and men, numerous officers were appointed to the Distinguished Service Order, many officers and men received the Distinguished Service Cross, and the Conspicuous Gallantry and Distinguished Service Medals were conferred upon many men. Subsequently the Victoria Cross were conferred upon Squadron-Commander Richard Bell Davies, R.N., and the Distinguished Service Cross on Flight-Sub-Lieut. G. F. Smylie, R.N., for a courageous attack made on Ferrijik Junction on November 9th. Orders were conferred on the flag officers. What appeared to be the final list of Naval awards to officers was published in the *London Gazette* on March 14, 1916. For services between April, 1915, and January, 1916, 133 British officers and 4 of the French Navy were commended, and 34 for the withdrawal from Gallipoli; 77 received the C.B., C.M.G., D.S.O., and D.S.C. for their services.]

The following are extracts from the despatch of General Sir Ian

* In the *London Gazette*, March 31, 1916, it was announced that Sub-Lieut. A. W. St. Clair Tisdall, R.N.V.R., killed in action at "V" Beach, April 25, 1915, was honoured with the Victoria Cross for rescuing several wounded men under heavy fire.

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Hamilton, dated December 11, 1915, describing the landing at Suvla Bay :—

The sheet-anchor on which hung the whole of these elaborate schemes was the Navy. One tiny flaw in the perfect mutual trust and confidence animating the two services would have wrecked the whole enterprise. Experts at a distance may have guessed as much; it was self-evident to the rawest private on the spot. But with men like Vice-Admiral de Robeck, Commodore Roger Keyes, Rear-Admiral Christian and Captain F. H. Mitchell at our backs, we soldiers were secured against any such risk, and it will be seen how perfect was the precision the sailors put into their job.

On July 22nd I issued secret instructions and tables showing the number of craft available for the 9th Corps Commander, their capacity, and the points whereat the troops could be disembarked; also what number of troops, animals, vehicles, and stores could be landed simultaneously. The allocation of troops to the ships and boats was left to General Stopford's own discretion, subject only to naval exigencies, otherwise the order of the disembarkation might not have tallied with the order of his operations.

The factors governing the hour of landing were: First, that no craft could quit Kephalos Bay before dark (about 9 p.m.); secondly, that nothing could be done which would attract the attention of the enemy before 10 p.m., the moment when the outposts on the left flank of the Anzac position were to be rushed.

General Stopford next framed his orders on these secret instructions, and after they had received my complete approval he proceeded to expound them to the general officer commanding the 11th Division and the general officer commanding the 10th Division, who came over from Mudros for the purpose.

As in the original landing, the luck of calm weather favoured us, and all the embarkation arrangements at Kephalos were carried out by the Royal Navy in their usual ship-shape style. The 11th Division were to be landed at three places, designated and shown on the map as A, B, and C. Destroyers were told off for these landing-places, each destroyer towing a steam lighter and picket-boat. Every light was to be dowsed, and as they neared the shore the destroyers were to slip their motor-lighters and picket-boats, which would then take the beach and discharge direct on to it. The motor-lighters were new acquisitions since the first landing, and were to prove the greatest possible assistance. They moved 5 knots an hour under their own engines, and carried 500 men, as well as ammunition and water. After landing their passengers they were to return to the destroyers, and in one trip would empty them also. Ketches with service launches and transport lifeboats were to follow the destroyers and anchor at the entrance of the bay, so that in case of accidents or delays to any one of the motor-lighters a picket-boat could be sent at once to a ketch to pick up a tow of lifeboats and take the place of a disabled motor-lighter. These ketches and tows were afterwards to be used for evacuating the wounded.

H.M.S. Endymion and H.M.S. Theseus, each carrying 1000 men, were also to sail from Imbros, after the destroyers, and, lying off the beach, were to discharge their troops directly the motor-lighters—three to each ship—were ready to convey the men to the shore, *i.e.*, after they had finished disembarking their own loads and those of the destroyers. When this was done—*i.e.*, after three trips—the motor-lighters would be free to go on transporting guns, stores, mules, etc.

The following craft brought up the rear :—

(1) Two ketches, each towing four horse-boats, carrying four 18-pounder guns and twenty-four horses.

(2) One ketch, towing horse-boats with forty horses.

(3) The sloop Aster, with 500 men, towing a lighter containing eight mountain guns.

(4) Three ketches, towing horse-boats containing eight 18-pounder guns and seventy-six horses.

Water-lighters, towed by a tank steamer, were also timed to arrive at A beach at daybreak. When they had been emptied they were to return at once to Kephalos to refill from the parent water-ship.

A specially fitted out steamer, the Prah, with stores (shown by our experience of April 25th to be most necessary)—*i.e.*, water-pumps, hose, tanks, troughs, entrenching tools, and all ordnance stores requisite for the prompt development of wells or springs —was also sent to Suvla.

Here perhaps I may be allowed to express my gratitude to the Royal Navy for their share in this remarkable achievement (the landing at Suvla Bay), as well as a very natural pride at staff arrangements, which resulted in the infantry of a whole division and three batteries being landed during a single night on a hostile shore, whilst the arrival of the first troops of the supporting division, from another base

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distant 120 miles, took place at the very psychological moment when support was most needed, namely, at break of dawn.

When General Sir Charles Monro reported that the complete evacuation of the Gallipoli Peninsula had been successfully completed on the night of December 19–20, 1915, he paid a high tribute to the Navy for invaluable assistance rendered in an operation of the highest difficulty. His despatch, dated March 6th, embodied the following statement:—"We had a further stroke of good fortune in being associated with Vice-Admiral Sir J. de Robeck, K.C.B., Vice-Admiral Wemyss, and a body of Naval officers, whose work remained throughout this anxious period at that standard of accuracy and professional ability which is beyond the power of criticism or cavil."

Belgian Coast Attacks.

The following despatch was received from Vice-Admiral Reginald H. S. Bacon, K.C.B., C.V.O., D.S.O., commanding the Dover Patrol, reporting the operations off the Belgian coast between August 22 and November 19, 1915:—

Office of Vice-Admiral, Dover, Dec. 3.

Sir,—In the summer and autumn of this year circumstances enabled offensive operations to be undertaken from the sea at certain points on the Belgian Coast. It is unnecessary to enter into the reasons for the various operations or the exact objectives attacked, since these are well-known to their Lordships.

In all cases great care has been taken to confine the fire of the guns to objectives of military or naval importance, so as to inflict the minimum of loss of life and distress on the civilian population, the larger number of whom are our Allies. In order to carry this principle into effect, it has at times been necessary to modify and even postpone projected attacks. The results, therefore, have been effective rather than sensational.

On the evening of August 22nd I sailed with H.M. Ships Sir John Moore (Commander S. R. Miller R.N.), Lord Clive (Commander N. H. Carter, R.N.), Prince Rupert (Commander H. O. Reinhold, R.N.), and seventy-six other vessels and auxiliaries, and on the following morning attacked the harbour and defences of Zeebrugge. The results were markedly successful; all the objectives selected were damaged or destroyed.

It was satisfactory that extreme accuracy was obtained with the gun-fire at the long ranges necessary for the best attack of such defences. This accuracy fully justifies the novel methods used and the careful training in attention to details to which the vessels are subjected. A similar organisation was employed in subsequent attacks.

On September 6th I attacked Ostend with five monitors, including General Craufurd (Commander E. Altham, R.N.) and M 25 (Lieut.-Commander B. H. Ramsay, R.N.), and damage was done to submarine workshops and harbour works. The enemy returned our fire with heavy guns of calibre probably larger than our own, and with considerable accuracy. Again the shooting on the part of our vessels was remarkably good, and the assistance rendered by the Auxiliary Craft most valuable.

On the same day Westende was subjected to attack by H.M. Ships Redoubtable (Captain V. B. Molteno, R.N.), Bustard (Lieut. O. H. K. Maguire, R.N.), and Excellent (Commander G. L. Saurin, R.N.), under the direction of Capt. V. B. Molteno, and with results that reflected credit on all concerned.

On September 19th, with several of the vessels, including H.M.S. Marshal Ney, (Capt. H. J. Tweedie, R.N.), I carried out an attack against certain defences in the neighbourhood of Middlekirke, Raversyde, and Westende, which resulted in damaging and silencing the batteries. Valuable co-operation was received from the French batteries in the vicinity of Nieuport.

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On the evening of September 24th, I despatched H.M.S. Prince Eugene (Capt. E. Wigram, R.N.) and one other monitor and the requisite auxiliary craft to bombard the following morning the coast of Knocke, Heyst, Zeebrugge, and Blankenberghe (east of Ostend), while with the other vessels, including H.M.S. Lord Clive (Commander G. R. B. Blount, R.N.), on the same day I carried out an attack on the fortified positions west of that place. Again, during these attacks, considerable damage was done.

On September 26th, 27th and 30th I made further attacks on the various batteries and strong positions at Middlekirke and Westende.

On the evening of October 2nd I sailed with four monitors, and again attacked with satisfactory results the batteries at Zeebrugge on the morning of the 3rd. The whole coast during our passage was showing signs of considerable alarm and unrest as a result of the previous operations. Our advanced vessels were attacked by submarine boats, but without result.

On October 6th, 12th, 13th, and 18th, and November 16th–19th other batteries or positions of military value have been attacked by the vessels under my command.

Up to the present, therefore, concerted operations of considerable magnitude have been carried out on six occasions, and on eight other days attacks on a smaller scale on fortified positions have taken place. The accuracy of the enemy's fire has been good.

The damage inflicted on the enemy is known to include the sinking of one torpedo boat, two submarines and one large dredger, the total destruction of three military factories, and damage to a fourth, extensive damage to the locks at Zeebrugge, and the destruction of thirteen guns of considerable calibre, in addition to the destruction of two ammunition depôts and several military storehouses, observation stations and signalling posts, damage to wharves, moles, and other secondary places. Further, a considerable number of casualties are known to have been suffered by the enemy.

I regret that three vessels were lost during the operations:—

H.M. Armed Yacht Sanda, sunk by gun-fire; H.M. drifter Great Heart, sunk by mine; and H.M. mine-sweeper Brighton Queen, sunk by mine.

Our total casualties numbered thirty-four killed and twenty-four wounded, which, considering the dangers to which the vessels were exposed by gun-fire, aircraft, submarine boats and mines on an enemy's coast, may be looked upon as comparatively small in proportion to the number of officers and men taking part in the operations.

It is with regret that, among others, I have to report the death of Lieut.-Commander H. T. Gartside-Tipping, R.N., of the armed yacht Sanda, who was the oldest naval officer afloat. In spite of his advanced age he rejoined, and with undemonstrative patriotism served at sea as a lieutenant-commander.

I cannot speak too highly of the manner in which the officers and men under my command have carried out the duties allotted to them. The work has been varied, and to a great extent novel, but in all particulars it has been entered into with a zeal and enthusiasm which could not have been surpassed. The gunnery results have exceeded my expectations.

Their Lordships will appreciate the difficulties attendant on the cruising in company by day and night under war conditions of a fleet of eighty vessels comprising several widely different classes, manned partly by trained naval ratings, but more largely by officers of the Naval Reserve, whose fleet training has necessarily been scant, and by men whose work in life has hitherto been that of deep-sea fishermen.

The protection of such a moving fleet by the destroyers in waters which are the natural home of the enemy's submarines has been admirable, and justifies the training and organisation of the *personnel* of the flotilla. But more remarkable still, in my opinion, is the aptitude shown by the officers and crews of the drifters and trawlers, who, in difficult waters under conditions totally strange to them, have maintained their allotted stations without a single accident. Moreover, these men under fire have exhibited a coolness well worthy of the *personnel* of a service inured by discipline. The results show how deeply sea adaptability is ingrained in the seafaring race of these islands.

It is to the excellent work done by the destroyers under Commodore C. D. Johnson, M.V.O., and the drifters under Captain F. G. Bird, that I ascribe our immunity from loss by submarine attack. The mine-sweepers, under Commodore W. G. Rigg, R.N., have indefatigably carried out their dangerous duties.

Throughout these operations attacks have been made on our vessels by the enemy's aircraft, but latterly the vigilance of the Dunkirk Aerodrome, under Wing-Commander A. M. Longmore, has considerably curtailed their activity.

I wish specially to mention the cordial assistance always tendered to me by Vice-Admiral Favereau, Commanding the French Second Light Cruiser Squadron, whose patrol vessels under Commander Saillard have assisted to protect our ships

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from submarine dangers. In doing this, I regret to say, their patrols have lost three vessels and several gallant lives.

I would also bring to their Lordships' attention the great assistance rendered to me by Brigadier-General T. Bridges, C.B., attached to the Belgian Mission.

Capt. H. W. Bowring, throughout these operations, has acted most ably as my Chief of the Staff.

R. H. Bacon,
Vice-Admiral, Dover Patrol.

[The despatch concluded with special recommendations, and Commodore C. D. Johnson, M.V.O., 6th Flotilla, Capt. E. Wigram, H.M.S. Prince Eugene, Capt. F. G. Bird, and Flag-Capt. H. W. Bowring and Commander W. G. H. Bickford, Dover Patrol, were appointed Companions of the Distinguished Service Order.]

Destruction of the Königsberg.

The following despatch was received from the Commander-in-Chief, Cape of Good Hope station :—

Challenger, July 15th.

Sir,—Be pleased to lay before their Lordships the following report of the operations against the Königsberg on the 6th and 11th instant :—

In accordance with orders issued by me, the various vessels concerned took up their appointed stations on July 5th, in readiness for the operations on the following day.

At 4.15 a.m. on July 6th, H.M.S. Severn, Captain Eric J. A. Fullerton, R.N., and H.M.S. Mersey, Commander Robert A. Wilson, weighed and proceeded across the bar into the Kikunja branch of the Rufiji River, which they entered about 5.20 a.m. The Severn was anchored head and stern and fire was opened on the Königsberg by 6.30 a.m. The Mersey was similarly moored and opened fire shortly after. Both monitors were fired on with 3-pdrs, pom-poms and machine-guns when entering the river and on their way up, and they replied to the fire.

At 5.25 a.m. an aeroplane, with Flight-Commander Harold E. M. Watkins as pilot, and carrying six bombs, left the aerodrome on Mafia Island. The bombs were dropped at the Königsberg with the intention of hampering any interference she might attempt with the monitors while they were getting into position. At 5.40 a.m. another aeroplane, with Flight-Commander John T. Cull as pilot, and Flight Sub-Lieutenant Harwood J. Arnold as observer, left the aerodrome for the purpose of spotting for the monitors.

At 5.45 a.m. I transferred my flag to the Weymouth, Captain Denis B. Crampton, M.V.O., and at 6.30 a.m. proceeded across the bar, with the whalers Echo and Fly sweeping, and the Childers sounding ahead; the Pyramus, Commander Viscount Kelburn, being in company. The Weymouth grounded on the bar for a few minutes on her way across, but soon came off with the rising tide, and advanced as far as the entrance to the river, where she anchored.

Fire from small guns was opened on her, and on the whalers, from the shore, but beyond one shell, which struck the Fly, no damage was sustained. A few rounds from the 6-in. guns put a stop to the firing, although it was impossible to locate the position of the guns owing to their being concealed amongst the trees and dense undergrowth.

After anchoring, the Weymouth did what was possible to assist the monitors by bombarding at long range a position at Pemba, where a spotting and observation station was supposed to be, and by keeping down the enemy's fire at the aeroplanes. This was done very effectively. At the same time the Pioneer, Commander (Acting) Thomas W. Biddlecombe, R.A.N., under the orders of the Hyacinth, Captain David M. Anderson, M.V.O., engaged the defences at the Ssimba Uranga mouth, her fire being returned until the defences were silenced.

Returning to the operations of the monitors; fire was opened, as before stated, at 6.30 a.m., but as the Königsberg was out of sight it was very difficult to obtain satisfactory results, and the difficulties of the observers in the aeroplanes in marking the fall of the shots which fell amongst the trees were very great, and made systematic shooting most difficult.

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There being only two aeroplanes available, considerable intervals elapsed between the departure of one and the arrival of its relief from the aerodrome 30 miles distant, and this resulted in a loss of shooting efficiency. At 12.35 one of the aeroplanes broke down, and at 3.50 the second one also. I signalled to Captain Fullerton to move further up the river, which he did, until at about 12.50 the tops of the Königsberg's masts were visible.

The Königsberg kept up a heavy fire on the monitors until about 12.30, when her fire slackened. At 2.40 p.m. she ceased firing, having for some time limited her fire to one gun. At 3.30 p.m. the monitors ceased fire, and retired out of the river, rejoining my flag off Koma Island at 6 p.m. On their way out they were again attacked by the small guns from the banks. I had returned over the bar in Weymouth at 12.30 p.m., and transferred to the Hyacinth at 3.0 p.m.

The Mersey had four men killed and four wounded, two of whom have since died, and her foremost 6-in. gun, at which most of the casualties occurred, was put out of action. The Severn fortunately suffered no losses or damage.

The various ships, whalers, tugs, &c., anchored for the night off the Delta, and proceeded to their various stations for coaling, &c., the following morning.

In view of the many difficulties in the way, and the heavy and accurate fire to which the monitors were subjected, I consider that the operations on July 6th, though not a complete and final success, are creditable to Captain Fullerton and Commander Wilson.

As it was necessary to make a fresh attack on the Königsberg to complete her destruction, further operations were carried out on July 11th, by which date the aeroplanes were again ready for service, and the monitors had made good certain defects and completed with coal. I reinforced the crew of the Severn by Acting Sub-Lieutenant Arthur G. Mack, with six petty officers and men; and the crew of the Mersey by Lieutenant Richard Ussher and Lieutenant Rundle B. Watson, with six petty officers and men. All the above were drawn from the Hyacinth.

The attack was carried out on the same lines as on the previous occasion, and the same mouth of the river was used. The monitors crossed the bar at 11.45 a.m., followed up to the entrance by the Weymouth and Pyramus, the latter proceeding three miles inside, and both searching the banks. The Hyacinth and Pioneer bombarded the Ssimba Uranga entrance.

On this occasion the monitors did not fire simultaneously; the Mersey remained under way, and fired while the Severn moored, and ceased fire when Severn commenced. The Severn was moored in a position 1000 yards closer to the enemy than on July 6th, which made her fire much more effective.

The observers in the aeroplanes, by their excellent spotting, soon got the guns on the target, and hit after hit was rapidly signalled. At 12.50 it was reported that the Königsberg was on fire.

As previously arranged with Captain Fullerton, as soon as they had got the situation well in hand, the monitors moved up the river, and completed the destruction of the Königsberg by 2.30 p.m., when I ordered them to withdraw.

The Königsberg is now a complete wreck, having suffered from shells, fire and explosions, several of which latter were observed. The only casualties sustained were three men slightly wounded in the Mersey. There were no casualties in the Severn.

By 8.0 p.m. all ships, except those detached on patrol, had returned.

Most serious risks have been run by the officers and men who have flown in this climate, where the effect of the atmosphere and the extreme heat of the sun are quite unknown to those whose flying experience is limited to moderate climates. "Bumps" of 250 ft. have been experienced several times, and the temperature varies from extreme cold when flying at a height to a great heat, with burning tropical sun, when on land.

In the operations against the Königsberg on July 6th, both the *personnel* and *matériel* of the Royal Naval Air Service were worked to the extreme limit of endurance. The total distance covered by the two available aeroplanes on that date was no less than 950 miles, and the time in the air, working watch and watch, was 13 hours. I will sum up by saying that the Flying Officers, one and all, have earned my highest commendations.

H. King Hall,
Vice-Admiral, Commander-in-Chief.

[The despatch included many special recommendations, and the following officers received the D.S.O.: Capt. Eric John Arthur Fullerton, R.N. (in charge of the two monitors); Commander Robert Amcotts Wilson, R.N.; Squadron Commander Robert Gordon, R.N.A.S. (Capt., Tempy. Major R.M.) (in command of the Air

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Squadron); Flight Commander John Tulloch Cull, R.N.A.S. (Lieut. R.N.); Flight Sub-Lieutenant Harwood James Arnold, R.N.A.S. The Distinguished Service Medal was awarded to a number of petty officers and men.]

An Order in Council was published in the London Gazette *of March 30th further settling the circumstances and procedure of our blockade. The main object was to declare that the doctrine of continuous voyage applied in its full extent, not only to absolute contraband, but to conditional contraband and to blockade. The effect of the Declaration of London was to leave, as the distinction between absolute and conditional contraband, that the latter could only be captured and condemned if it was destined for the armed forces of the enemy, or for the use of the enemy Government, whereas absolute contraband was liable to the same fate if destined for any part of the enemy territory. In practice, in the conditions of this war, the distinction between the two kinds of contraband became unimportant, since substantially all goods sent to enemy territory were in fact used directly or indirectly for the support of the armed forces and were therefore equally liable to capture, whether conditional or absolute contraband. So large a proportion of the inhabitants of the enemy country were taking part in the war, directly or indirectly, that no distinction could be drawn between the armed forces and the civilian population, and the enemy Government had taken control of practically all the articles in the list of conditional contraband.*

In order to mark the practical identity of the two kinds of contraband it was announced in the House of Commons that the Government would issue in an official form a complete list of contraband articles, both absolute and conditional, printed together, so that all neutral traders might have notice of the conditions. This list was issued April 20th. A subsidiary object of the Order in Council was to define certain circumstances which would raise a presumption that goods seized had an enemy destination, and especially to point out that that presumption would arise if they were consigned to a person in a neutral country who was known previously to have sent on contraband goods to the enemy. As the war progressed it became clear that articles ought to have been inserted which had not already been inserted, and the contraband list was extended from time to time.

The text of the reply of the British Government to the United States Note of November 5, 1915 (*page* 277), *was published on April 26th. It embodied a long and reasoned examination in detail, and a report from Admiral Sir John Jellicoe on the impossibility, in the conditions of modern war, of searching neutral vessels for contraband at sea.*

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President Wilson communicated to Congress in the following words, on April 19th, the purport of a very important message which he had despatched to the German Government on the subject of the German submarine attack on commerce (*see page* 294)*:*

"I have deemed it my duty to say to the Imperial German Government that, if it is still its purpose to prosecute relentless and indiscriminate warfare against vessels of commerce by the use of submarines, notwithstanding the now demonstrated impossibility of conducting that warfare in accordance with what the Government of the United States must consider the sacred and indisputable rights of International Law and the universally recognised dictates of humanity, the Government of the United States is at last forced to the conclusion that there is but one course to pursue, and that, unless the Imperial German Government should now immediately declare and effect the abandonment of its present methods of warfare against passengers and freight-carrying vessels, this government can have no choice but to sever diplomatic relations with the Government of the German Empire altogether."

The German reply to the United States Note was delivered on May 4th, the following being the chief points :—

Germany reserved further communication in regard to the sinking of the Sussex until certain points had been ascertained.

The American statement that the sinking of the Sussex was but one incident in a long series of deliberate and indiscriminate attacks on ships of all nationalities was repudiated. "Submarine commanders had orders to act in accordance with the general principles of International Law, except against enemy ships carrying enemy goods in the war zone."

America was blamed for the greater part of the "accidents" to American citizens, because she had refused to accept Germany's proposals "to reduce to a minimum for American travellers and goods the inherent dangers of naval warfare."

Germany could not dispense with her submarine warfare, which she had adopted "in self-defence against the illegal conduct of British warfare while fighting a bitter struggle for national existence," but she would make the "further concession" that submarine commanders would act in accordance with the principles of International Law both within and without the war zone, i.e., no ship anywhere should be sunk without warning and without saving the lives of those on board unless she attempted to escape or offered resistance.

In return for this "concession" Germany expected that America

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would "now also consider all impediments removed which may have been in the way of mutual co-operation towards the restoration of the freedom of the seas" and that America would "demand and insist that the British Government should forthwith observe the rules of International Law universally recognised before the war."

Should America not succeed in getting "the laws of humanity followed by all belligerent nations" Germany reserved "complete liberty of decision."

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TABLE OF WARSHIP LOSSES.

In the ship and flotilla tables in Part II. those vessels which were lost or destroyed prior to the issue of the *Naval Annual* last year have been removed from the lists, but prefixed to the more important tables the record of their loss is given. In the case of ships subsequently lost the circumstances are recorded in the tables.

For purposes of reference it has, however, been considered advisable to give here a summary list, so far as is known, of all ships and vessels lost since the beginning of the war, except that attention is directed in two places to the tables.

GREAT BRITAIN.

Battleships.

	Date of Loss.	Displacement. Tons.
Bulwark, internal explosion, Medway	Nov. 26, 1914	15,000
Formidable, torpedoed, Channel	Jan. 1, 1915	15,000
Ocean, mined, Dardanelles	Mar. 18, ,,	12,950
Irresistible, mined, Dardanelles	Mar. 18, ,,	15,000
Goliath, torpedoed, Dardanelles	May 12, ,,	12,950
Majestic, torpedoed, Dardanelles	May 27, ,,	14,900
Triumph, torpedoed, Gulf of Saros	May 26, ,,	11,800
King Edward VII., mined, North Sea	Jan. 9, 1916	16,350
Russell, mined, Mediterranean	April 27, ,,	14,000

Armoured Cruisers.

Aboukir, torpedoed, North Sea	Sept. 22, 1914	12,000
Cressy, torpedoed, North Sea	Sept. 22, ,,	12,000
Hogue, torpedoed, North Sea	Sept. 22, ,,	12,000
Good Hope, Coronel battle	Nov. 1, ,,	14,100
Monmouth, Coronel battle	Nov. 1, ,,	9,800
Argyll, wrecked, E. Scottish coast	Oct. 28, 1915	10,850
Natal, internal explosion	Dec. 30, ,,	13,550

Light Cruisers.

Amphion, mined, North Sea	Aug. 6, 1914	3,440
Pathfinder, torpedoed, E. Scottish coast	Sept. 5, ,,	2,940
Pegasus, sunk by Königsberg, Zanzibar	Sept. 20, ,,	2,135
Hawke, torpedoed, E. Scottish coast	Oct. 16, ,,	7,350
Hermes, torpedoed, off Dover	Oct. 31, ,,	5,600
Arethusa, mined, North Sea	Feb. 14, 1916	3,750

Torpedo Gunboats.

Speedy, mined, North Sea	Sept. 3, 1914	810
Niger, torpedoed, off Deal	Nov. 10, 1914	810

Destroyers.

Recruit, torpedoed, North Sea	May 1, 1915	383
Maori, mined off Belgian Coast	May 7, ,,	1,035
Lynx, mined, North Sea	Aug. 9, ,,	935
Louis, wrecked, Ægean	Nov. 10, ,,	965
Coquette, mined, North Sea	Mar. 10, 1916	335

Torpedo Boats.

Nos. 10 and 12, torpedoed, North Sea, June 10, 1915; **No. 96,** collision, Gibraltar, Nov. 1, 1915.

Submarines.

D 5, mined off Yarmouth, Nov. 3, 1914; **E 3,** sunk off Heligoland, Oct. 18, 1914; **E 7,** sunk, sea of Marmora, Sept. 8, 1915; **E 13,** stranded at Saltholm, salved, and interned by the Danes; **E 15,** stranded, Dardanelles, and destroyed, April 18, 1915; **E 17** and another, sunk off Texel, Jan. 6, 1916; **E 20,** sunk, Sea of Marmora, Nov. 5, 1915; **E 22,** sunk, North Sea, April 24, 1916; **AE 1,** lost in Pacific, Sept. 15, 1914; **AE 2,** sunk, Sea of Marmora, May, 1915.

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FRANCE.

BATTLESHIP.

		Displacement. Tons.
Bouvet, mined, Dardanelles	Mar. 18, 1915	12,007

(Situation of Gaulois and Masséna uncertain.)

ARMOURED CRUISERS.

		Displacement. Tons.
Léon Gambetta, torpedoed, near Strait of Otranto	April 26, 1915	12,351
Amiral Charner, torpedoed, Syrian coast	Feb. 8, 1916	4702

TORPEDO GUNBOATS.

Zélée, sunk by von Spee's Squadron, Papeete	Oct. 28, 1914	554
Casabianca, mined, Ægean	June 3, 1915	974

DESTROYERS.

Mousquet, sunk by Emden, near Penang	Oct. 28, 1914	300
Dague, mined off Antivari	Feb. 24, 1915	730
Branlebas, mined off Belgian coast	Nov. 19, ,,	320
Renaudin, torpedoed, Adriatic	Feb. 18, 1916	750

TORPEDO BOATS.

No. 219, sunk off Nieuport, Jan., 1915; **Nos. 338** and **347,** sunk by collision off Toulon, Oct. 9, 1914.

SUBMARINES.

Saphir, lost near Pola, Jan. 17, 1915; **Turquoise,** Sea of Marmora, Nov. 3, 1915; **Mariotte,** Dardanelles, July 26, 1915; **Joule,** mined, Dardanelles, May 1, 1915; **Curie,** captured by Austrians, Pola, Dec. 24, 1914; **Fresnel,** near San Giovanni di Medua, Dec. 5, 1915; **Monge,** off Durazzo, Dec. 20, 1915.

ITALY.

BATTLESHIP.

		Displacement. Tons.
Benedetto Brin, internal explosion	Sept. 28, 1915	13,214

ARMOURED CRUISERS.

Amalfi, torpedoed, Adriatic	July 7, ,,	9,956
Giuseppe Garibaldi, torpedoed off Cattaro	July 18, ,,	7,294

DESTROYER.

Turbine, sunk by gun-fire, Adriatic	May 24, ,,	330

SUBMARINE.

Medusa, torpedoed, Adriatic	June 15, ,,	225-320

RUSSIA.

ARMOURED CRUISER.

Pallada, torpedoed, Gulf of Finland	Oct. 11, 1914	7,900

LIGHT CRUISER.

Jemchug, sunk by Emden, Penang	Oct. 28, ,,	3,130

GUNBOATS.

Donetz and **Kubanetz,** sunk, near Odessa	Oct. 30, ,,	1,200
Sivoutch, sunk, Gulf of Riga	Aug. 19, 1915	875

DESTROYER.

Leitnant Pushtin, torpedoed off Varna	March, 1916	350

JAPAN.

Old armoured cruiser **Takachiho,** 3,700 tons, mined off Tsing-tao, Oct. 17, 1914; destroyer **Shirotaye,** 380 tons, wrecked, Kiao-chau Bay, Sept. 4, 1914; torpedo-boat **No. 33,** mined, Kiao-chau Bay, Nov. 11, 1914.

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GERMANY.

Battle-Cruiser.

There is good reason to believe that the **Von der Tann**, 18,700 tons, was sunk towards the close of 1914.

Armoured Cruisers.

		Displacement. Tons.
Blücher, sunk, Dogger Bank	Jan. 24, 1915	15,550
Scharnhorst, / **Gneisenau,** sunk, Falkland Islands	Dec. 8, 1914	11,420
Yorck, sunk by German mine, Jahde	Nov. 3, ,,	9,350
Friedrich Karl, mined, Baltic	Dec. 12, ,,	8,858
Prinz Adalbert, torpedoed, Baltic	Oct. 23, 1915	8,858

Light Cruisers.

Magdeburg, destroyed, Aland Islands	Aug. 17, 1914	4,478
Köln, / **Mainz,** sunk, Heligoland Bight	Aug. 28, ,,	4,280
Ariadne, sunk, Heligoland Bight	Aug. 28, ,,	2,618
Hela, torpedoed by E 9, near Heligoland	Sept. 13, ,,	2,003
Emden, destroyed, Keeling Island	Nov. 9, ,,	3,544
Karlsruhe, lost, Caribbean Sea	Nov. ,,	4,820
Nürnberg, sunk, Falkland Islands	Dec. 8, ,,	3,396
Leipzig, sunk, Falkland Islands	Dec. 8, ,,	3,200
Dresden, sunk off Juan Fernandez	Mar. 14, 1915	3,554
Königsberg, finally destroyed, Rufigi River	July 11, ,,	3,350
Undine, torpedoed, Baltic	Nov. 7, ,,	2,672
Bremen, torpedoed, Baltic	Dec. 17, ,,	3,200

Minelayer **Albatross,** 2000 tons, sunk, Gothland, July 2, 1915; gun-vessel **Geier,** 1604 tons, interned, Honolulu, Nov. 8, 1914; **Kormoran,** 1604 tons, **Luchs,** 886 tons, **Tiger,** 962 tons, **Iltis,** 881 tons, **Jaguar,** 900 tons, lost at Tsingtau; **Eber,** interned, Bahia, Sept., 1914; river-gunboats **Vaterland** and **Tsingtau,** interned or sold on the Yang-tse; survey ships **Planet,** scuttled in the Carolines, Sept., 1914; **Möwe,** sunk by the Pegasus, at Dar-es-Salaam, Aug. 9, 1914.

Destroyers and Submarines.

For these see notes and particulars preceding the German Flotilla Tables, pp. 218, 219.

Armed Merchant Vessels.

Königin Luise (mine-layer), sunk by Birmingham, Aug. 5, 1914; **Kaiser Wilhelm der Grosse,** sunk by Highflier, Aug. 26, 1914; **Cap Trafalgar,** sunk by auxiliary armed vessel Carmania, Sept. 14, 1914; **Prinz Eitel Friedrich** and **Kronprinz Wilhelm,** interned, Norfolk, U.S.A., April, 1915; **Meteor,** sunk, North Sea, Aug. 9, 1915; **Greif,** sunk, North Sea, March 25, 1916; also many other German auxiliary cruisers, armed vessels, yachts, trawlers, mine-sweepers, etc.

AUSTRIA-HUNGARY.

Light Cruisers.

		Displacement. Tons.
Kaiserin Elizabeth, sunk, Tsingtau	Oct. 15, 1914	4,000
Zenta, sunk off Antivari	Aug. 16, ,,	2,264

Destroyers.

Lika, Triglav, sunk off Durazzo	Dec. 30, 1915	787

Also river monitor **Temes,** sunk in the River Save, Oct. 23, 1914; torpedo-boat **No. 19**; submarines **U 3, U 12,** and others. See note page 231.

TURKEY.

Battleships, **Messoudieh,** 9120 tons, torpedoed, Dardanelles, Dec. 13, 1914; and **Kheyr-ed-Din Barbarossa,** 9901 tons, torpedoed, Sea of Marmora, Aug. 9, 1915; cruiser **Medjidieh,** 3432 tons, mined, Black Sea, April 3, 1915; gunboat, **Doruk Reiss,** or one of the class, 550 tons; **Marmaris,** 250 tons, sunk on the Tigris; torpedo cruisers, **Berk-i-Satvet** and **Peik-i-Shevket**; destroyer, **Yar Hissar;** also other gunboats, transports, and many supply ships.

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BIBL LYON

Lord Brassey
1914

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APPENDIX.

THE SUNBEAM.

LORD BRASSEY'S FAREWELL TO HIS YACHT, BOMBAY, MARCH 17, 1916.

YOUR EXCELLENCIES, CAPTAIN LUMSDEN, LADIES AND GENTLEMEN:—

I am here to-day to present my yacht, the Sunbeam, to the Government and the people of India.

And first let me say to your Excellencies how glad I am that this closing act of a long career at sea should take place under your auspices. Lady Brassey deeply regrets she could not be present. I value the more your support to-day. The mention of my wife's name is a fitting opportunity for acknowledging the courage, endurance, and devotion which she has shown in making voyages in the Sunbeam, such as that from England round the Cape to Australia—voyages as long and as arduous as we have ever undertaken. Lady Brassey was more than a mere passenger. She was a skilled navigator. She decided to go beyond the mere practice of navigation. She was keen to know the theory as well as the practice. In turbulent seas she would put questions which, to my regret, being ignorant of spherical trigonometry, I was unable to answer.

The reason why I have greatly desired personally to hand my old ship over is best given by reading to you a telegram received from His Excellency, Lord Hardinge:—"On behalf of the Government of India I gladly accept your most generous and patriotic offer of the Sunbeam, as a free gift, for service as a Hospital Ship. I express to you my warmest gratitude for this splendid gift. It will be a pleasant thought for you that this beautiful yacht, with which you and your name have been so long and worthily associated, is destined for the future to bring comfort and help to the sick and wounded. I wish I could have seen you to thank you personally, but I hope to do so later in England." I should have been made of stone, if I had not been deeply touched by Lord Hardinge's kind words.

There is another gentleman to whom my grateful thanks are due. I refer to Captain Lumsden, the representative to-day of the Government of India, and, I may fittingly add, of the Royal Indian Marine, a noble service with a long record.

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It is impossible to narrate the history of more than forty years in a few moments. The Sunbeam has sailed in every sea. She has logged 500,000 miles. The longest voyages include :—

Round the World	1876–77
West Indies and United States	1883 and again in 1892
Calcutta and Bombay	1893–94
Australia, Tasmania, New Zealand . . .	1895–97
Australia to England.	1900
Canada	1903
West Indies and United States	1905
Iceland and Canada	1910
Bombay	1913–14
Mediterranean (as Hospital Ship) . . .	1915
India (from Alexandria)	1916

In addition to these voyages the Sunbeam has been to the Mediterranean and back seven times, as well as to Norway twice and to the Baltic. The earlier voyages have been narrated by a keen observer and true lover of Nature. I must not trust myself now to dwell on a sacred and beloved memory. The narrative of the Voyage Round the World was received with universal appreciation. Millions of copies were sold. It was translated into every language of Europe. Most truly I can say it has ever been the aim of all my family to make our experiences afloat of some value to mankind. From our deck first-aid to the injured was earnestly advocated, when, as yet, that holy cause had few active friends. From our deck the cause of Imperial unity has been warmly commended. We have endeavoured to carry messages of good-will from the Homeland to the great Dependencies beyond the sea.

The Sunbeam once lay for three months at Calcutta as a sort of flagship of the Opium Commission, of which I was Chairman. Our Indian colleagues, bringing many friends, were our most constant visitors. During the five years—five happy years—of my residence in Victoria, as Governor, the Sunbeam was with me in those distant waters. Every port of importance was visited. We made repeated trips to Tasmania. Our cruises extended to New Zealand. The glorious scenery of the sounds and bays of the south-west of the Middle Island will remain a life-long memory of the grand and the beautiful. We did our best to cultivate Imperial instinct. Nor should the encouragement of the dashing Australian yachtsmen fade into oblivion without a passing word. Later, at Montreal, we were flagship to a Congress, over which I

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had the honour to preside, of 500 delegates, representatives of every Chamber of Commerce in the Empire. It was a notable gathering. Lord Minto, Sir Wilfrid Laurier and all his Ministers, Lord Strathcona, the leading men in finance and trade in Canada attended. They all came on board. The nurses and doctors of every hospital in Montreal were welcome and delighted visitors.

The Sunbeam has been honoured by the visits—in some instances prolonged visits—of famous men. More than thirty years ago Mr. Gladstone made a voyage to Norway in the Sunbeam. The vessel was lent to the late Lord Tennyson for a few weeks, in 1889, for a cruise in Home waters. King Edward was an occasional visitor on board. Our present King has graciously allowed Captain Carter, the skipper of the Britannia, to be employed as master of the yacht. Mr. Horace G. Hutchinson—a name not be omitted—went to Iceland and Canada in 1910, and wrote a description of the voyage under the title of "A Saga of the Sunbeam."

I owe a deep debt to the Sunbeam for the opportunity of gaining some knowledge of the sea and ships. It has created a life-long interest in the Navy. It has made me a warm friend of sailors. I have ever been well served by British seamen. In my recent voyage I have, for the first time, been obliged to complete the crew with seamen of other nationalities, Greeks predominating. Ably led by Captain Carter, our mixed crew have well done their duty. Do not believe that there are no good seamen remaining in the present day. They always turn up when called upon, especially where they know they will be well treated. We had a recent proof when, two days ago, Captain Lumsden inspected the Sunbeam. His crew of Lascars, led by Captain The Earl of Glasgow, R.N., were on the yards; instantly the order was given to loose sails, and all were delighted to do their work as seamen. The opportunities come all too seldom in these days of mastless ships.

There are other recollections. Here in Bombay it is a pleasure to remember that the visit of the Sunbeam in 1914 awakened general interest. All the Indian friends whom we had the honour to meet at Government House, the Rulers of important States, those without claim to hereditary distinction—to use a fine old English phrase, "all sorts and conditions of men"—desired to see the Sunbeam, and were graciously received by my dear daughter, Lady Mabelle Egerton. There must be many here by whom she is remembered. Every man in His Excellency's Bodyguard was keen to see the Sunbeam. Many had never been afloat before. Their united weight almost submerged our fleet of boats. These splendid swordsmen, of whom not more than four could be in any cabin at one time, never

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collided, so sinuous, so serpentine, so skilfully and gracefully directed, was their every movement!

What shall I say more of the Sunbeam? Of early Victorian date, the old ship still deserves the Viceroy's praise. She is a thing of beauty; and things of beauty are said to live for ever. Long after she has ceased to exist, portraits will record how graceful was her hull, how seaworthy her appearance. No portrait that has ever been or can be taken can exceed that treasured parting gift from the members of the Royal Bombay Yacht Club two years ago. Their great kindness in escorting me to the light-ship, with every vessel in their fleet, can never be forgotten.

The Sunbeam is a sturdy craft. She has contended with many heavy gales. Only once have I seen her in difficulties. It was off Flamborough Head, in a notable hurricane in the 'eighties of last century. It was a gale so furious that every monarch of the forest in the central pathway of the storm, in the noblest and oldest parks of Yorkshire, was uprooted. Though sail had been reduced to two jib-headed trysails, we were thrown on our beam-ends, the gig and the lighter boats being blown to pieces. We instantly righted when sail was taken off.

I will not commend the Sunbeam as a flyer. Her steam-power is too small to give her a real turn of speed. Her spread of sail is too limited to enable her to compete with a racing yacht. Yet she has, under favourable circumstances, done record deeds. In a race across the Atlantic, not many years ago, she sailed 1900 miles under canvas in one week, covering the full distance from the longitude of St. John's, Newfoundland, to the longitude of the West Coast of Ireland, making 300 miles a day for three successive days, and 250 miles a day in the ensuing four days of the week.

On a later occasion, under steam and sail, we did a run of 1800 miles from Aden to Bombay in ten days. On the voyage just completed we sailed 1700 miles in seven and a half days. As to coal, we have not been voracious. The consumption on the two voyages was in each case approximately 36 tons. It is, I submit, a unique example of the effective combination of sail and steam power.

I must not detain you longer. I must now say farewell to the Sunbeam.

> Farewell, a word that must be, and has been,
> A word that makes us linger, yet once more farewell.

Dear old vessel! How many, many memories of joy and sorrow gather around your name. You are, I venture to believe, a household word in many lands. Nothing that is unworthy mars your long and chequered story. Old friend, you are as a living thing to

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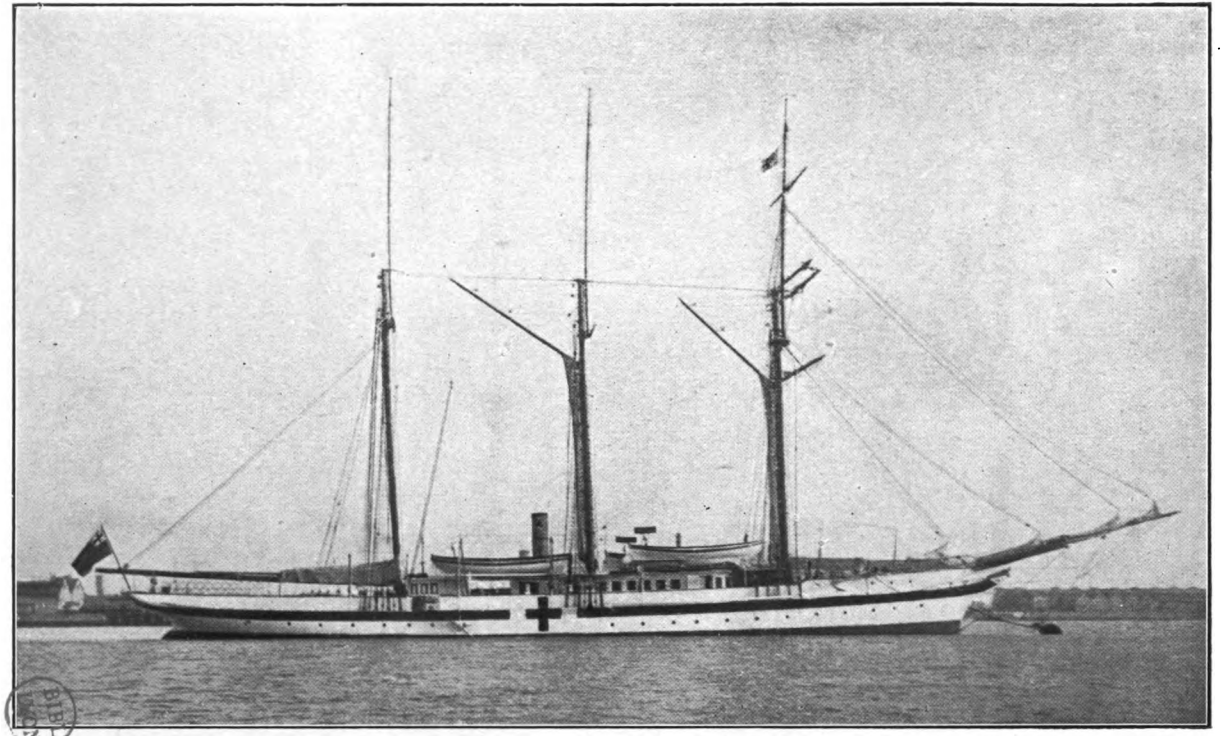

THE SUNBEAM AS HOSPITAL SHIP.—*November*, 1914.

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me. How often have I stood at your helm, when spanking breezes filled your sails, and truly you walked the waters as a thing of life.

There may be sorrow without regret. For many reasons, on which I need not dwell, I feel sure that I am doing right. It is a real consolation to know that my old vessel in her new line may do good work in many ways for long years to come.

Captain Lumsden, in reply, said:—

YOUR EXCELLENCIES, LADIES AND GENTLEMEN,—I have invited you here to-day with the double object of having the pleasure of seeing you all in this compound, and also to do honour to the occasion of the presentation of the famous old Sunbeam to the Indian Government by her owner for so many years, Lord Brassey. I need not tell you how I appreciate the honour of being the recipient of this most generous gift on behalf of the Government of India. But I must also tell you and Lord Brassey how very much that Government appreciates the gift, because I have been commissioned to do so.

The Sunbeam has, since the outbreak of the war, been placed by Lord Brassey at the service of the military medical authorities and a large number of convalescent officers and men have made short cruises in her, both from English and Mediterranean ports, to the great benefit of their health; and it will be a great satisfaction to Lord Brassey to think that her first employment under the Indian Government will be of a similar nature.

It is not only the gift, which is a most valuable and useful one, but the generous spirit that conceived the idea of parting with what must be one of the most treasured possessions that Lord Brassey has collected in his long and adventurous career. This I am sure will appeal to all of us, and Lord Brassey may be sure that every care will be taken by myself and the officers of the Indian Marine, and also—which is perhaps more important—those officers of the Dockyard on whom the responsibility will rest of seeing that the vessel's weaknesses and defects that from time to time will develop, more especially as she advances in years, receive careful attention.

Lord Brassey, as I think you all know, has from his very early days taken a vital interest in everything to do with the sea, more especially the Royal Navy; and his *Naval Annual* was, for many years, the only book which gave to the public any detailed information of the size and power of His Majesty's Fleet. It has always been a matter of wonder to me why he did not embark on a naval career as a boy, though no doubt there were good reasons at that time why the Navy was deprived of his services. Perhaps he

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thought that his voyages might have been unduly curtailed and his passion for rowing too frequently nipped in the bud. The loss is the Navy's.

Lord Brassey has told us some of the exploits of the Sunbeam. He has taken little credit to himself, but after a good deal of experience under sail, I know, and a good many others here to-day know, that a ship will not make record passages or behave with credit in her struggles with adverse winds and heavy seas, unless the man in charge, the man responsible for her trim and equipment, knows his business thoroughly well, makes a minute study of the peculiarities of his ship, and has that instinct which is, I think, born with him, and tells him when and why he is getting the best out of her, and also tells him when something prevents the ship doing her best.

What I mean to say, and what Lord Brassey with characteristic modesty has omitted to say, is that, besides his many other accomplishments, he is a thoroughly good practical seaman, and as such the Navy would have been very proud to have had him on the active list since his boyhood.

This particular spot on which the transfer of the Sunbeam is taking place is, in many ways, a most appropriate one. Within a few yards of where we stand was built in 1750 the first dry-dock ever made east of Suez, and its fame and utility soon became so widely known, that sailing ships of all nationalities made for Bombay to derive the benefits of its facilities.

Some of the last and also the best wooden line-of-battle ships were built in this Dockyard, to say nothing of 170 other vessels of almost every type then in use, which were built here for the Royal and Indian Navy up to the year 1863. The locality, therefore, seems most suitable—I might almost say comfortable—for a ship of the Sunbeam type to eke out her last days of service.

Lord Brassey, let me thank you in the name of His Excellency the Viceroy and the Government of India, and the Royal Indian Marine, for your most generous gift, and please accept my assurance that every care shall be taken of the Sunbeam as long as she holds together.

From *The Times of India*, March 18, 1916.

WHAT Lord Brassey described as the closing act of his long career at sea took place yesterday afternoon, and his farewell to the Sunbeam, given to the Government of India for use as a hospital ship, must have aroused many memories in all who took part in the function as well as in all who knew something of the record of that famous yacht. No yacht has ever had so full or so romantic a history. She has sailed in every sea, logging 500,000 miles, and the story of her early voyages has been written for all time, for the perpetual delight of generation after generation of those who like to read of travel and Nature. With every fresh voyage her fame has grown,

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until now she is rightly regarded as a yacht quite apart from all others, and with which none can ever hope to compare. In the first place, she was never built for racing. There was never anything about her that suggested merely the excitement of contest, and so she made a far wider appeal than could the ordinary yacht. She and her owner have been inseparable, in fact, and for the public to think of Lord Brassey without recalling the Sunbeam has long been impossible. For Lord Brassey then to leave in his old age the trusted friend of a lifetime—for that is what the Sunbeam has been to him—can have been no ordinary parting. He has the consolation of knowing that she is to be well employed, and will play a part in bearing the burden of Empire as nobly as her owner has done: the public has the pleasure of witnessing an act of patriotic sacrifice that may rightly be termed unique.

From *The Advocate of India*, March 18, 1916.

It was a graceful and tender farewell which Lord Brassey gave to the Sunbeam yesterday, in handing over that famous vessel to the Government of India as a hospital ship. The occasion, indeed, demanded far more than the usual recognition. The Sunbeam is much more than an ordinary yacht. Her voyage round the world and the narrative concerning it have made her almost a national and imperial institution. There is in this sense a special appropriateness in her presentation to the nation and Empire for the merciful purposes of healing and rest for those wounded in the war, and whatever Lord Brassey's regrets at parting, there must be great consolation in the consciousness that her new career is in so high a cause. That the Sunbeam, although by no means new, will be of notable service as a hospital ship there can be no doubt. The gift of several more vessels like her would be of the greatest value to the work among our wounded soldiers.

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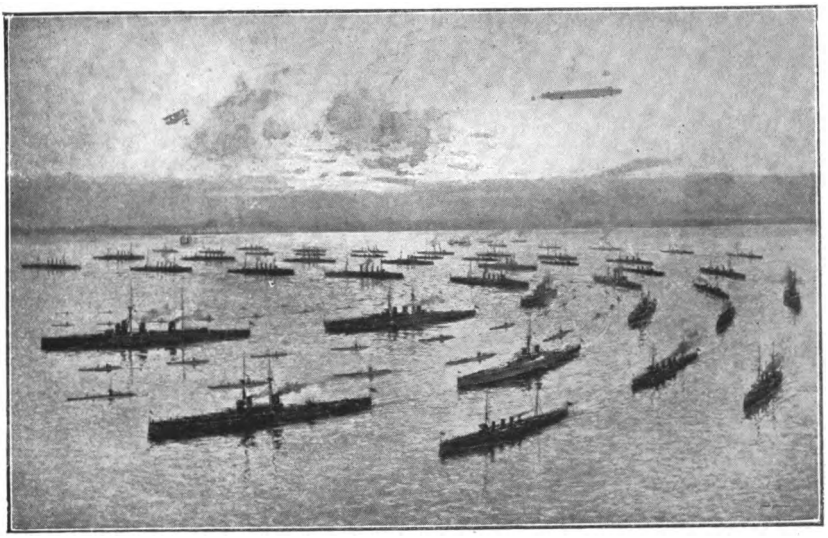

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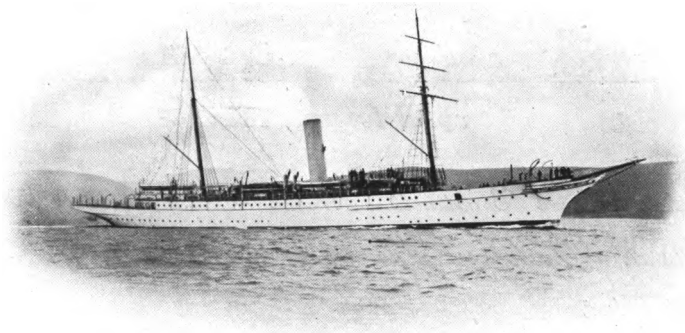

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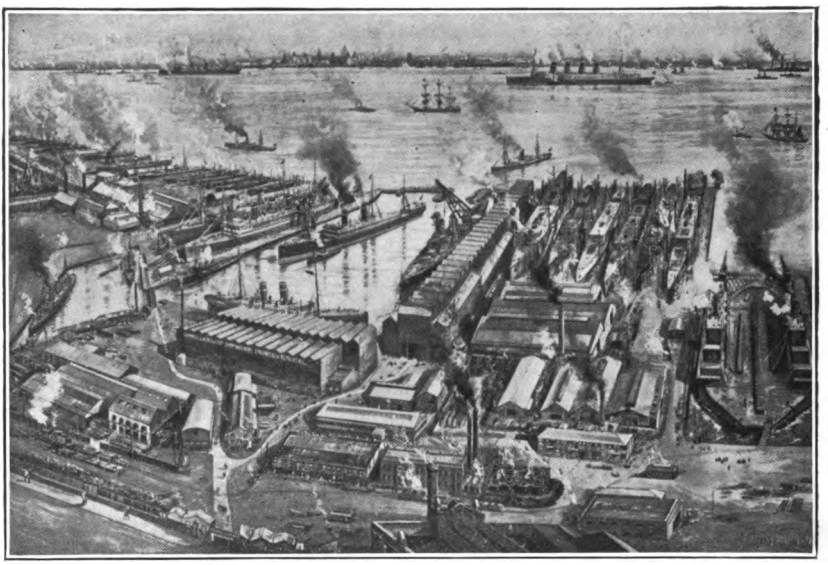

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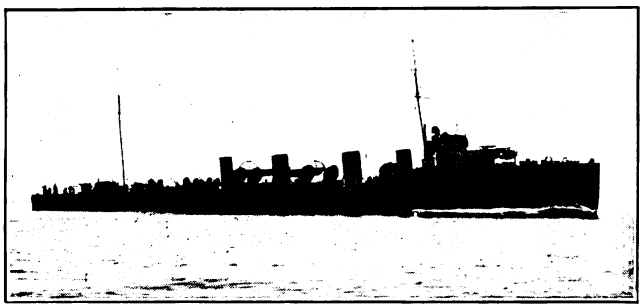

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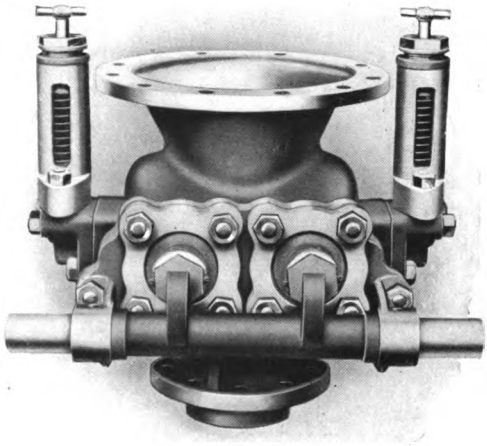

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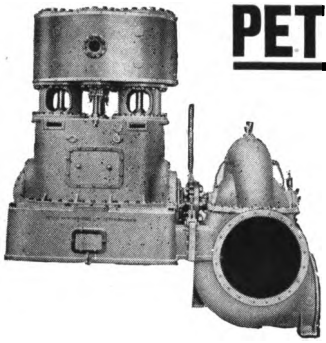

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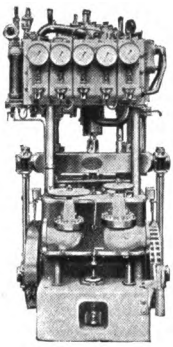

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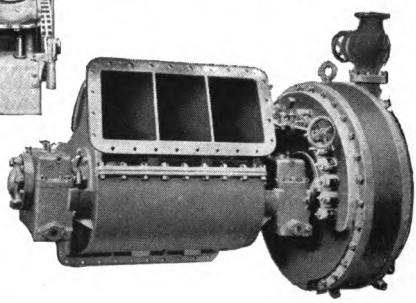

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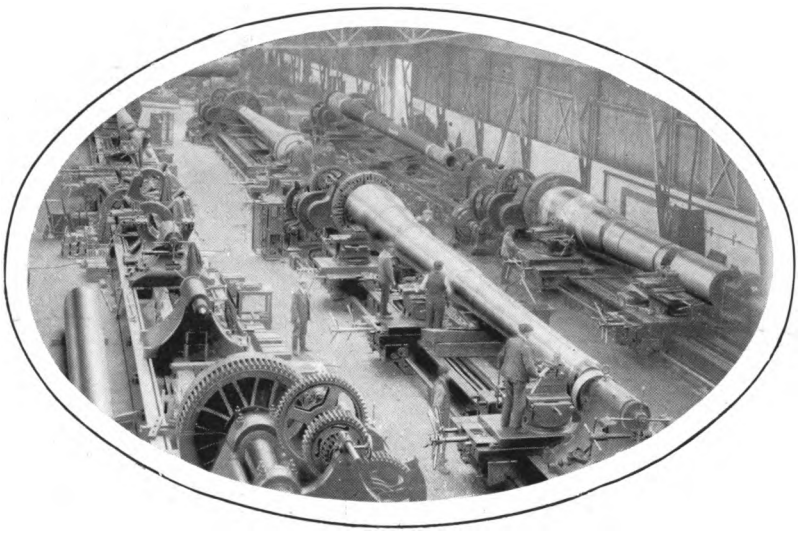

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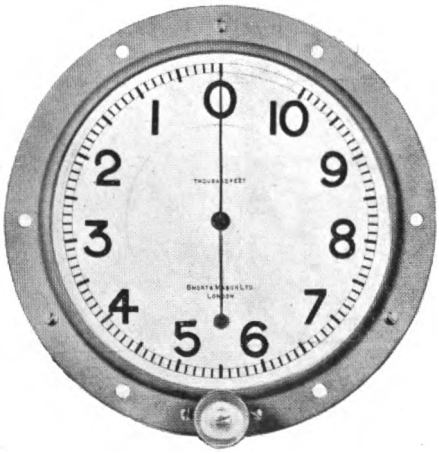

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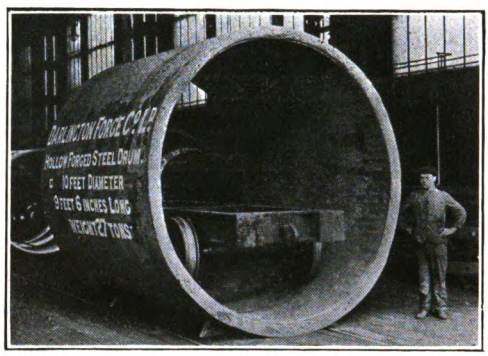

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